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THE UNIVERSITY OF ALBERTA

A DESCRIPTIVE STUDY OF MOTHERS' PERCEPTIONS OF GRADE THREE LEARNING DISABLED CHILDREN

by

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A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF MASTER OF EDUCATION

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

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THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled A Descriptive Study of Mothers' Perceptions of Grade Three Learning Disabled Children

submitted by Elaine Mary Whitford

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ABSTRACT

The present research described a representative sample of learning disabled children and compared them to a control sample of normally achieving students on a number of medical, behavioral and familial characteristics. Sex differences were studied for the variables which differentiated between the learning disabled and normally achieving groups. The children were studied from the perspective of their mothers' perceptions, as reported on an individually administered interview schedule.

The final sample included 62 LD and 69 control grade three children chosen from eleven urban elementary public schools. The LD children were receiving part-time learning assistance in a resource room, and met the defined requirements of having average ability, but deficits of 1 1/2 to 2 years in achievement. The normally achieving children also had average scholastic ability, but none had learning problems requiring remedial placement. The two groups were also similar in age and socioeconomic status, based on fathers' occupations. However, the LD subjects performed at statistically significant lower levels on the reading recognition, spelling and arithmetic subtests of the Wide Range Achievement Test, as compared to the control group.

An interview schedule designed for use in the study included questions about the children's early medical history, observations of behaviors, and mothers' perceptions and expectations about their children's school progress. Questions about the family included both demographic data and information about social relationships within the family.

The results revealed that LD children do not differ significantly

from normally achieving children in terms of medical history or family demographic factors. Learning disabled children were reported by their mothers to display significantly more negative behaviors than control children. Both boys and girls in the LD group were reported to be more "distractible" than children in the control group, while only LD boys were reported to be significantly more "hyperactive". Significantly more LD boys had repeated a grade by the time they had reached grade three. The mothers of the learning disabled children perceived their children's abilities to achieve in five main school subjects as being significantly lower in comparison to the control group, and reported significantly lower expectations for future academic success.

Findings related to family relationship factors indicated that significantly fewer mothers of learning disabled children were currently married to their child's father. A greater proportion of LD children from separated families no longer saw their fathers, and children in the control group spent significantly more hours each week with their fathers. The mothers of the LD children reported that they worried about their children's school achievement, and the mothers of LD girls reported experiencing significantly more loneliness than did other mothers.

The findings were discussed in terms of their usefulness in describing a "typical" learning disabled child, as defined by the factors differentiating between the two groups. The findings that the major discriminators were behavioral and social factors suggested that any remedial programs must also include strategies for modifying negative behavior, and involving the parents in an active role of helping to change their child's socioemotional environment. Some

specific topics for school counsellors/psychologists to focus on when working with parents of learning disabled children were presented.

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CHAPTER I

INTRODUCTION AND OVERVIEW

Learning disabilities have become widely studied in the past decade as educators have realized that some children continue to achieve below their potential in specific school subjects, despite average intellectual ability. Previous explanations of general underachievement or low motivation have largely been discarded for a concept of specific learning disabilities.

A gradual change in the definition of learning disabilities has occurred, from the suggestion of brain damage to the less severe description of minimal brain dysfunction, through an educational definition of learning disabilities, and finally to a government definition determined largely by budget limitations on special education funding. The present study will define learning disabled students as having average intellectual ability and a deficit in achievement of 1 1/2 to 2 years in one or more subjects.

A variety of factors which have previously been studied and related to learning disabilities include: prenatal and medical problems, behavioral factors, and familial variables. A review of the relevant literature dealing with these factors will be presented. A problem with much of the research is that studies have been based either on single cases, or on groups of learning disabled children; few have provided a description of the characteristics of a rigorously selected representative sample, or compared a sample of learning disabled children to a sample of normally achieving students.

The research reporting the incidence of prenatal and medical problems in learning disabled children is generally inconclusive.

Although researchers have tended to conclude that their findings do show a relationship between medical variables and learning problems, the actual percentages of LD children who have experienced specific medical problems range between 5% and 30% (Koppitz, 1971; Silver, 1971; Steg & Rapoport, 1975). It seems that a comparison of the incidence of prenatal and medical problems in learning disabled and normally achieving children is needed, in order to determine which factors do differentiate between the two groups.

Behavioral factors such as "hyperactivity" and distractibility have often been reported as being characteristic of learning disabled children (Brown, 1969; Rugel & Mitchell, 1977; Silver, 1971; Strag, 1972; Tseng & Sonstegard, 1971). Other observations of behaviors of learning disabled children have varied widely, and have included: nervous habits (Koppitz, 1971), temper outbursts (Shelton, 1977), overaggressiveness (Pfeiffer, 1972), and destructiveness (Rugel & Mitchell, 1977). Only the studies by Strag, and by Rugel and Mitchell, compared learning disabled children to a control group, in terms of their observed behaviors.

Family variables have also been linked to learning disabilities. Three main areas will be investigated: demographic family variables, parents' perceptions and expectations, and family relationships. Generally, the literature dealing with demographic family variables has been based on general surveys of groups of learning disabled children, with little reference to the general population. Thus, suggestions that learning disabilities might be related to the parents' educations, occupations or income have been made (Camlibel, 1975; Glaser, 1974). The few studies which used a control group reported few differences

between LD and control children (Campbell, 1972; Helms, 1977).

More recently, researchers have become interested in the interactions between parents' perceptions and expectations and their children's academic achievement (Chapman & Boersma, 1979b; Holzberg, 1978; Longshore, 1976; Sloman & Webster, 1978). It has been found that parents tend to underestimate their learning disabled children, and expect comparatively lower achievement levels than do parents of normally achieving children. A mechanism suggesting how expectations might serve to maintain low achievement will be discussed (Cooper, 1979).

Finally, relationships within the family have been related to learning disabilities. Some studies have suggested that parental conflict might be related to lowered school achievement of the children, while others have reported that parents of learning disabled children experience more marital conflict (Gerber, 1976; Grossman, 1978a; Wetter, 1971, 1972).

The present study seeks to identify some of the variables which differentiate between learning disabled and normally achieving students. It seems that those factors which can be modified would be of most interest to teachers and school counsellors, in developing remedial programs for particular students. Attributing learning disabilities to neurological dysfunction provides little direction for remediation, although it is generally accepted that learning disabilities can be remedied. Even solely school-based programs sometimes do not attain the success expected, perhaps because only a portion of the factors related to a child's particular learning difficulties have been considered.

The importance of the child's family should also be recognized. Parents are "significant others" to their children. Accordingly, the present study uses a mother interview schedule as a basis for determining some of the medical, behavioral and familial factors that differentiate between learning disabled and normally achieving children.

Generally, more boys than girls have been identified as learning disabled. A number of theories have been proposed to explain this discrepancy. It has been suggested that there may be an inherent biological susceptibility in males, which produces a higher incidence of learning problems. Alternatively, society's expectations for boys' achievement may be more demanding than for girls, so that more boys are identified as having serious learning problems. It seems that one task is to determine which characteristics differentiate between learning disabled and normal boys, and between learning disabled and normal girls.

In summary, the literature dealing with the characteristics of learning disabled children is inconclusive. The purpose of this study is to determine the defining characteristics of learning disabled children by: 1) describing a representative sample of learning disabled students, 2) comparing them to a control sample of normally achieving students, 3) studying the children through their mothers' perceptions, and 4) determining any differential sex characteristics. The resulting knowledge should be useful to teachers and counsellors in understanding the dynamics of learning disabilities and planning appropriate remedial strategies.

CHAPTER II

REVIEW OF LITERATURE AND RESEARCH

In accordance with the stated purposes of the present study, the review of literature will cover a number of topics. First, the successive changes in the definition of learning disabilities will be presented. An analysis of some definitions presently accepted will indicate the current focus on educational variables. Then a wide range of factors which have been associated with learning disabilities will be considered. It will be suggested that the evidence relating some of these factors to learning disabilities is inconclusive, in that many studies have been based on inadequate samples, and few studies have compared their learning disabled groups to a matched control sample of normally achieving students. Some of the factors which will be presented include: birth difficulties, medical problems such as allergies, hyperactivity, behavior problems and family factors.

Definitions of Learning Disabilities

Learning disabilities is a term that has been in vogue for only fifteen years. Prior to that time children who had difficulty in learning, despite apparently average ability as measured by current intelligence tests, were usually classed as either underachievers or minimally brain damaged -- as underachievers if it was decided that they lacked motivation and as brain damaged if they appeared to be working to capacity.

Chapman, Boersma and Janzen (1979) described three phases in the developing definition of learning disabilities. Initially learning disorders were seen as being due to brain damage. Later, as

researchers began to question whether brain damage and learning problems were always related, the more general term of minimal brain dysfunction was substituted. Even more recently this latter term has been criticized because it implies some organic deficit. As Chapman et al. (1979, p. 288) noted, "A relationship between neurological processing and learning disabilities has never been proven." Currently, the term "learning disabilities" is used by many educators to describe the learning problems of children with average ability.

Grossman (1978b) explained the changing definitions of a learning disability as being related to the agency or group of people providing the definition. Grossman linked the term "minimal brain dysfunction" to the medical profession, and "learning disabilities" to educators who tend to identify learning disabled children by comparing the child's potential and actual performance. Grossman further argued that the current definition is being influenced by governments, whose concern is to identify a certain percentage of the school population for which special funding must be provided.

These three focuses on learning disabilities seem to be supported by the findings of Pulliam (1975) who surveyed the literature dealing with the incidence of learning disabilities and found that learning disabled students were being identified on the basis of varied criteria, including: discrepancies between expected and actual success in learning, clinical findings which assumed some neurological impairment, and estimates of the expected incidence provided by government agencies. By combining the findings from 40 reports and studies, based on these diverse definitions, Pulliam concluded that there was general agreement that about 10% of school children are

learning disabled.

The definition provided by the United States National Advisory Council on Handicapped Children in 1968 has provided a common base from which both researchers and educators can work:

> Children with specific learning disabilities exhibit a disorder in one or more of the basic psychological processes involved in understanding or using spoken or written languages. These may be manifested in disorders in listening, thinking, talking, reading, writing, spelling, or arithmetic. They include conditions which have been referred to as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, developmental aphasia, etc. They do not include learning problems which are primarily due to visual, hearing or motor handicaps, to mental retardation, emotional disturbances, or to environmental disadvantages (cited in Mercer, Forgnone & Wolking, 1976, p. 378).

This definition has been analyzed and criticized by a number of researchers. Danielson and Bauer (1978) suggested that a major problem with the definition was its reliance on value decisions, and presented a mathematical formula based on chronological age and IQ which was to be used in identifying severely learning disabled children. Hammill (1976) was similarly concerned about the vagueness of the definition, and warned that large segments of school populations could be labelled as being learning disabled.

Hammill specified that learning disabled children should have average or near average intellectual ability, and suggested a deviation IQ of 90 as a minimal cut-off point. Furthermore, he stated that students should have serious academic achievement problems; at the kindergarten and grade one and two levels, Hammill suggested that readiness, language or achievement test results of average ability students should be 1.5 standard deviations below the mean scores. At grades three to seven, achievement should be equal to or below half of the child's grade level placement, and at upper grade levels achievement

should be below a grade equivalent of 4.5 before the child should be considered to have a severe discrepancy between ability and achievement. Hammill also cautioned against using process tests to identify learning disabilities, since there is little evidence that process test results and academic problems are related. Similarly, Hammill noted that soft signs of neurological disturbance and abnormal EEG's have not been shown to be related to learning disabilities.

Chapman, Boersma and Janzen (1979) noted a problem with ability testing: since it is dependent on prior learning, the ability of a child who has had difficulty learning may be underestimated. Also, whether or not a child's achievement is perceived as low may depend on the achievement level of the other children in a particular grade or school, to whom the child is being compared.

More relevant to the present study are several studies that investigated the characteristics of students who had been classed as being learning disabled and were enrolled in resource rooms or learning assistance programs. Stark (1971) found that the 222 children admitted into special classes for the learning disabled during the first two years of the program in California were primarily middle class Caucasians. The children had average IQ's, low achievement in school, and usually had behavioral problems. Generally, the children's classification as learning disabled was not supported by any neurological findings.

Gajar (1978) reported that the 378 students he studied in Virginia were low socio-economic black males. It appears that the criteria used by a given school district to select learning disabled students may be closely related to the population of the district, and that learning

disabilities may be found at all socioeconomic and educational levels.

Norman (1978) provided one of the more comprehensive surveys, by studying 1,966 students who had been identified as being learning disabled. The students came from 24 child service demonstration centers in 22 states. Norman found that the mean IQ of the students was 92.5, with performance IQ as measured by the WISC-R being about six points higher than the verbal IQ. The discrepancy between expected and actual achievement was expressed as a mean learning efficiency score. Generally, the discrepancy was somewhat greater for reading than for mathematics; the mean learning efficiency was 68.1% for reading, and 74.5% for mathematics. When Norman compared the data of individual students to the criteria specified by the government agencies funding the classes, only 47% of the students were appropriately classified as learning disabled.

Liss (1979) compared 299 learning disabled students from grades one to six with 253 normally learning children. Liss reported that the mean age of the children when they were referred for assessment was 8.9 years. Like Norman, Liss found a verbal-performance discrepancy on the WISC-R. Liss also found that most LD students had multiple academic problems, and that behavior or emotional problems were often associated with the academic problems. Finally, the LD group had a disproportionate number of boys as compared to the normal group.

In summary, it seems that learning disabled students tend to be students of average ability who have low academic achievement, which is often associated with behavior problems. None of the studies used a Canadian population, but it seems that Canadian findings would concur to the extent that similar definitions and selection criteria

were used.

A final issue in defining learning disabilities is whether the problem is due to factors in the child, the teacher, or the environment (Greenlee & Hare, 1978). Kass and Myklebust stated that, "Learning disability refers to one or more significant deficits in essential learning processes requiring special education techniques for remediation" (1969, pp. 378-379). Conversely, Cruikshank (1977) argued that learning disabilities are due to perceptual processing deficits, and that they are a complex developmental problem, not a problem of remediation. However, both Kass and Myklebust, and Cruikshank agree that teaching materials and methods must be matched to the specific processing needs of an individual child. As Chapman, Boersma and Janzen stated, "Since LD children are identified primarily on the basis of learning difficulties, a learning disability is above all else an educational problem, and accordingly, requires an educational solution" (1979, p. 291).

Factors Related to Learning Disabilities

A wide range of factors have been considered, individually or in groups, to be characteristics either defining or relating to learning disabilities. Many of these factors became associated with learning disabilities through observations by counsellors and psychologists, while working with children with learning problems. Some articles suggesting a link between a given factor and learning disabilities have been based on the observation of a single case. Others have summarized a clinician's observations of a number of cases, over several years. Some of the factors which have been considered include: birth difficulties, medical problems such as allergies,

hyperactivity, behavior problems, educational history and family factors.

Medical Factors

The model of learning disabilities using "minimal brain dysfunction" as synonymous seems to imply not only a medical or neurological relationship, but medical factors as a cause of later problems in learning. An article in a book summarizing current knowledge about learning disabilities states, "These abnormalities are thought to be neurologic; indeed, such factors as premature birth, traumatic birth, severe infantile illness exist" (Pihl, 1975, p. 21).

Silver (1971) studied the medical data of 556 learning disabled children, all of whom had average intellectual ability, and what Silver called "neurological learning disability syndrome." Silver found that about 5% of the mothers of LD children had a previous history of miscarriage. In about 12% of the LD births, an RH factor incompatibility was involved. About 5% of the LD children had been born prematurely, and about 5% of the mothers had experienced complications during pregnancy. Silver reported that 12% of the LD children had had a difficult delivery.

Higher percentages were obtained by Koppitz (1971) who reported some medical history data for 177 elementary school children who were enrolled in full-time learning assistance classes. Koppitz reported that 27% of the LD children had experienced prenatal or birth trauma. Although there is no evidence to prove a relationship between learning disabilities and neurological functioning, Koppitz found that 45% of the LD students had been diagnosed by a medical doctor as having "brain dysfunction"; 25% had reports of abnormal EEG readings.

Steg and Rapoport (1975) examined 23 learning disabled boys, looking for minor physical anomalies. They reported high anomaly scores for learning disabled children; a large head circumference and high palate were the only anomalies found. Steg and Rapoport suggested that since these two physical features are formed in the first four months of pregnancy, that early developmental deviation may have occurred in the central nervous system at the same time.

Bauldauf (1975) stated that vision or hearing problems could affect a child's achievement in school. However, according to most accepted definitions, a learning disability "consists of a deficiency in learning despite adequate intelligence, hearing, vision, motor capacity and emotional adjustment" (Myklebust, 1968, p. 2). The distinction is between deficiencies in the functioning of the sense organ itself, and deficiencies in the central processing of auditory or visual input.

Saltsman (1975) found that the mother's age when the child was born was not a factor differentiating between LD and educable mentally retarded children. Saltsman did not compare mothers' ages between LD and normally achieving students.

Both Silver and Koppitz found some indication that LD children may experience delays in development. Koppitz (1971) reported that 28% of the LD students in her sample of 177 had uneven development, with some specific areas of immaturity. Koppitz also noted that 21% did not walk or talk until after two years of age. Silver (1971) reported delayed motor development for about 20% of his sample; of these, about half had been born prematurely.

Another factor which is sometimes linked to learning disabilities

is allergy. Havard (1973) presented one case study, and concluded that hyperactivity, minimal brain damage and learning disabilities were all due to allergies.

Hyperactivity has often been seen to be associated with learning disabilities (Brown, 1969; Horner, 1977; Silver, 1971). Silver reported that 12% of his sample of learning disabled children had received medication for hyperactivity. Horner's work is representative of some recent work comparing LD children taking medication with those not taking medication for hyperactivity. Horner reported that ritalin did not change the children's preferred levels of stimulation, and that, in fact, the hyperactive children did not have significantly higher preferred levels of stimulation when compared to normally achieving children. There was similarly no difference between preferred stimulation level for the children on medication when they were taking the medication, as compared to when they were not taking the medication. It seems that although learning disabled children may be seen as being hyperactive, whether or not they are given medication is not related to a medical difference in their response to stimulation.

From the research attempting to relate learning disabilities to prenatal, perinatal or childhood medical problems, one can draw few definite conclusions. There are several weaknesses in the research as a whole. Firstly, some of the studies and reports are based on only one, or at most a few, case studies. In order to generalize to a population, statistical random sampling methods must be used. Secondly, the percentages of learning disabled children reported as having prenatal, perinatal or childhood medical problems range from

about 5% to 30%. Little explanation is given for the remaining 70% to 95% of learning disabled children. As Silver noted, "Siblings without a history of such difficulties also had learning difficulties" (1971, p. 358). Thirdly, very few studies have compared the incidence of these factors for learning disabled children to their incidence for normally achieving students. It is quite possible that 5% to 30% of the population as a whole experiences these medical problems. Of particular interest in this study is the comparison of a sample of learning disabled children to a sample of normally achieving children, in order to determine which factors do differentiate between the two groups.

Behavioral Factors

One of the most commonly observed behaviors of learning disabled children is hyperactivity, or difficulty in sitting still (Brown, 1969; Koppitz, 1971; Rugel & Mitchell, 1977; Silver, 1971; Strag, 1972) and a second commonly observed behavior is distractibility, or difficulty in concentrating (Brown, 1969; Rugel & Mitchell, 1977; Silver, 1971; Tseng & Sonstegard, 1971).

Observations of other behaviors of learning disabled students are more varied. Pfeiffer (1972) studied aggressive tendencies in 23 learning handicapped students, using both a teacher rating scale and a picture test measuring frustration. Pfeiffer found his sample of learning disabled students to be more aggressive than the norm; the difference from the norm was greater for boys than for girls.

Shelton (1977) and Kronick (1974) stated that the learning disabled child is often different from other members of his family so that interpersonal needs may not be met. Both Shelton and Kronick

suggested that learning disabled children may lack self-confidence as a result.

Strag (1972) compared the behavior of 56 normally achieving students and 30 learning disabled children using a behavior rating scale, which the parents of the children responded to. Out of 30 items, seven differentiated between normal and LD children at the .05 level of significance. Learning disabled children were rated by their parents as being significantly less considerate of others, less able to receive affection, and more clinging than normal children. The parents of LD children also indicated that their children were more rigid, more negative, more energetic, and less coordinated physically than normal children.

Tseng and Sonstegard (1971) did a longitudinal study in which behaviors of learning disabled children from preschool age through grade ten were correlated to academic development. Tseng and Sonstegard concluded that lower academic achievement in children with learning problems was related to a negative attitude, lack of self-confidence, poor attention span and discouragement.

Koppitz, in her 1971 study of 177 learning disabled boys and girls, reported the following incidences of observed behaviors: restlessness and distractibility: 91%; low tolerance for frustration: 54%; temper outbursts: 43%; anxiety and tenseness: 42%; aggressive or destructive behaviors: 32%; attention-getting behavior: 32%; rebelliousness: 18%; and delinquent behavior such as stealing: 10%. Koppitz also noted that 38% of the LD students appeared to be withdrawn and depressed, and 14% had nervous mannerisms.

A more recent study by Rugel and Mitchell (1977) compared the behaviors of 63 LD students and 23 normally achieving students. A behavioral scale was rated by both parents and teachers, for each of the students. The LD students differed from the controls on 19 out of 20 items on the behavioral rating scale. Learning disabled students were rated as being more active, more poorly coordinated, less attentive and less persistent than were controls. Other descriptors which were checked by teachers and parents of learning disabled students included: destructive, aggressive, fearful, shy and depressed.

It has been reported (Phipps, 1977) that teachers refer more boys than girls for assessment of possible learning disabilities, and that the boys are referred primarily because of behavior problems rather than academic difficulties. In Phipps' study, the teachers themselves reported that they considered behavior problems to be "more serious" than academic problems. The preponderance of boys in classes for the learning disabled has been documented many times; Silver's 1971 sample of 556 learning disabled children was composed of 77% males and 23% females. Koppitz reported boy to girl ratios between 8:1 and 4:1 for various age groups in her study. Koppitz noted that many boys were referred at age six, while most girls were not referred until age seven or eight. Koppitz suggested that classroom teachers may be willing to cope with learning problems, but tend to refer behavior problems for assessment and placement in special education classes. Koppitz found children in learning assistance classrooms who were functioning only one year below grade level in reading; she noted that many children in regular classrooms

have this level of functioning. Koppitz concluded that "achievement alone is rarely a reason for referring a child to a special class" (1971, p. 20).

Of particular interest to this study are the studies which reported significant behavioral differences between learning disabled students and controls (Rugel & Mitchell, 1977; Strag, 1972) and the studies indicating sex differences in behaviors (Pfeiffer, 1972; Phipps, 1977). It is predicted that in the present study mothers of learning disabled and control children will report significantly different behaviors for their children, and that these differences will be more marked between LD and control boys than between LD and control girls.

Academic Achievement

One of the characteristics of learning disabled children is their lower academic achievement as compared to normally achieving students. Chapman, Boersma and Janzen (1979) stated that LD students have a 1 1/2 to 2 year deficit in one or more school subjects. The most common subject areas in which deficits are observed tend to be reading and language arts. Brown (1969) reported lower achievement in reading, writing and spelling for learning disabled students. Similarly, Norman (1978) reported deficits in both reading and arithmetic achievement for the 1,966 learning disabled students studied, with reading achievement being comparatively lower.

Campbell (1972) found that almost half of his sample of 23 learning disabled boys had repeated a grade by the time they reached grade six. It was suggested by Glaser (1974) that lower achievement levels and the resulting repetition of a grade might be related to

increased family mobility, particularly if moves necessitating changes in schools and programs occurred during the school year. Camlibel (1975) studied a number of family and background variables while attempting to relate these to academic performance. Camlibel found that family mobility with its increase in the number of schools attended by the children was more closely related to achievement than was either tardiness or absenteeism.

To summarize, it seems that learning disabled students, by definition, have low levels of academic achievement and that they experience the most difficulty with reading. About half may have achievement deficits which warrant their repeating a grade. Although it has been suggested that family mobility may be related to these achievement deficits, to date there has not been a study which compared the relative mobility of LD and normally achieving students.

Parental perceptions and expectations. There is an increasing amount of research which suggests that parents of learning disabled and normally achieving students differ in their reactions to their children's academic achievement, as well as in their expectations for future success. Abrams (1970) noted that parents of low achieving LD students may find it difficult to accept that their child has a problem; as a result, the child may develop severe feelings of inadequacy. Sloman and Webster (1978) presented a set of interview questions to be used in determining how the expectations of parents might be affecting their learning disabled child. The questions dealt with how the parents perceived and reacted to their child, how much independence they felt the child was able to handle, and their expectations for the child's academic achievement in the future.

Kilpatrick (1978) compared a group of learning disabled children to a group of normally achieving students and could find no significant differences on either medical or socioeconomic variables. However, the two groups did differ on some specific psychological variables, leading Kilpatrick to suggest further investigation of mother-child interactions.

Some effects of parental attitudes on achievement have been documented. Tseng and Sonstegard (1971) reported that parents' attitudes toward their children are significantly correlated ($p < .05$) to the children's academic achievement. Thus, positive parental attitudes are associated with higher achievement than are negative parental attitudes. Friedman (1973) analyzed the data obtained from interviews with fifty-three families of learning disabled children and found that over half the parents were communicating ambiguous or conflicting messages about achievement to their children. For example, some parents would tell their children that they wanted the child to do well at school, but would infer nonverbally that they did not expect the child would be successful. Other parents verbally expressed acceptance of their child's current achievement level, but then would negate that acceptance by making comments that indicated they would be very upset if the child did not pass his grade. It seems that negative parental attitudes may be equally potent in their relationship to lower academic achievement whether expressed verbally or nonverbally.

Parents' attitudes are closely linked to their reactions to their children. Counsellors are well aware of the technique of using changes in beliefs and thoughts in order to change behaviors. Wetter

suggested that it was important to identify parental attitudes toward their learning disabled children in order to modify these through counselling before negative reactions developed. Several studies compared the attitudes and reactions of learning disabled students' mothers and normally achieving students' mothers, and reported the mothers of learning disabled students to be significantly more rejecting and overindulgent (Wetter, 1971, 1972).

A more recent study by Chapman and Boersma (1979b) researched mothers' reactions to their children's achievement-related school experiences, using the intellectual subscale of the Parent Reaction Questionnaire. Although there was ample opportunity to falsify responses, the mothers of the learning disabled students reported more negative interactions with their children and fewer positive reactions ($p < .05$) to school-related behaviors than did the mothers of the control group.

There is also some evidence which shows a differential in response of learning disabled and normally achieving students to the attitudes and reactions of their parents. Swanson and Parker (1971) studied parent-child relations for groups of learning disabled and normal children, and reported that the LD children displayed ambivalence in their perceptions of acceptance by their parents. Gerber (1973) used a family doll placement technique to measure closeness between family members. Gerber reported that learning disabled children placed a much greater distance between themselves and their mothers than did normal children.

It appears that negative attitudes of parents of learning disabled children are being communicated to their children verbally,

nonverbally and through negative reactions. As a result, LD children are less secure about their parents' acceptance of them, and may tend to withdraw from the relationship. A circular effect may result, in which the learning disabled child, because of his differences from other family members, provides fewer rewards for the parents. They, in turn, reward the LD child less by providing fewer positive interactions. The LD child withdraws from family relationships, particularly with his mother, because he is not receiving reinforcement, and fewer occasions for positive interaction are then available.

The seriousness of this chain of events may be increased if the parents' perceptions of their child are inaccurate. Holzberg (1978) reported significant differences in the accuracy of parental perceptions. For example, parents from higher social classes often underestimated the language abilities of the learning disabled children, while parents from lower social classes tended to underestimate their children's motor abilities. Longshore (1976) asked parents of learning disabled and normally achieving boys to estimate their sons' current levels of academic achievement. Parents of regular class boys all overestimated their sons' grade equivalents of achievement in various subjects. Mothers of learning disabled boys also tended to overestimate their sons' achievement, although to a lesser extent. Fathers of learning disabled boys did not overestimate their sons' achievement, and were most accurate in estimating reading comprehension achievement. The interesting part is that not only was the actual achievement of the control group of boys much higher than that of the learning disabled group, but the gap was further widened when the parents of normal boys overestimated, and the fathers of

the learning disabled boys did not.

The influence of expectations on achievement has been widely studied, particularly in the classroom. Generally, studies have concluded that increasing the expectations of a teacher for a student's success is related to a subsequent increase in performance. Similarly, low expectations are related to low achievement. Austin (1970) studied mothers' expectations for their sons' early, non-academic achievements and found that the mothers of learning disabled boys reported having expected earlier competence in self-feeding, toilet training and dressing. In this case it seems that unrealistically high expectations were as detrimental to success as low expectations have been shown to be.

Chapman and Boersma (1979b) measured mothers' expectations of their children's future school achievement, using the Projected Academic Performance Scale. They found that mothers of learning disabled subjects expected their children to perform less well on future academic tasks than did mothers of control subjects. Furthermore, the learning disabled children themselves held significantly more negative self-perceptions of their ability in reading, spelling and arithmetic than did normally achieving children (Chapman & Boersma, 1979a). This lower self-perception of ability was generalized to all subjects, until it was manifest as a general negative attitude toward school.

Cooper (1979) has recently proposed a mechanism by which expectations may affect student achievement in classrooms, and it seems probable that a similar process may link parental expectations and achievement. Cooper stressed the mutual influence between expectations

and achievement, in that expectations are initially determined by previous achievement. High-expectation students have a higher likelihood of success. Low-expectation students do not have a high likelihood of success, so the teacher is more concerned about controlling the learning process in order to maximize the number of successes. The teacher needs to limit the number of student-initiated learning interactions in order to have more teacher-planned learning experiences, and control over student-initiated interactions is most easily effected by limiting praise and reinforcement. Therefore, these students receive little reinforcement for their attempts at participation in the learning process. They see little correspondence between their efforts and success, and the prophecy of low achievement is fulfilled as the low-expectation students expend less effort toward achievement.

Two of the factors cited by Cooper as contributing to the maintenance of below average performance seem particularly relevant to the effects of parental expectations. The first is the warmer socioemotional climate which is created for brighter students. Cooper presented studies showing that teachers' nonverbal behaviors toward bright students were more positive than their behaviors toward low-achieving students. There was a greater incidence of smiling at, leaning toward and maintaining eye contact with brighter students. The second factor is the differential feedback received by bright and low-achieving students. High-expectation students not only received more praise, but more praise per correct response. Conversely, low expectation students were criticized more and received proportionately more criticism per incorrect response.

The effects of these factors in maintaining low achievement in the classroom may be similar to the effects of negative parental attitudes, interactions and expectations for the school-related achievement of learning disabled children. Cooper argued that teacher expectations probably serve to sustain student performance. It seems likely that low parental expectations also maintain the low achievement of their learning disabled children, thus reducing the probability of success of remedial programs.

Learning disabled children have average or above average levels of intellectual ability, by definition. Although parental expectations of low achievement were probably originally developed from observations of their children's actual achievement, there is little indication that the children could not be expected to achieve at levels commensurate with their ability. Instead, a cyclical process develops, with low achievement producing low expectations and the reduced positive feedback maintaining low achievement. As Cooper commented, "When both student performance and ... expectations are influenced by factors other than intellectual ability, the problem takes on even more significant dimensions" (1979, p. 393).

The present study focuses on mothers' expectations of their children's future academic success, as well as their perceptions of their children's abilities to successfully learn particular school subjects. Mothers' expectations and perceptions were selected because mothers are seen as being significant others in the lives of their children, and because of research supporting the importance of the mother-child relationship (Gerber, 1973; Kilpatrick, 1978; Wetter, 1971, 1972). The previous research indicates that learning disabled

children have their negative attitudes about their abilities to achieve well at school reinforced by their mothers' low expectations. The home environment appears to be less supportive of learning disabled students than of normally achieving students. In the present study, it is hypothesized that there will be a significant difference in the academic achievement between the learning disabled and control groups. Furthermore, it is predicted that there will be a significant difference in mothers' estimates of their children's abilities and expected success, with the estimates by mothers of learning disabled children being lower.

Family Factors

Learning disabilities have been related to a number of family demographic factors, ranging from the number of children in the family to the parents' educations, occupations and income. As with other factors, there is little agreement on the relationship of family factors to learning problems.

Glaser (1974) suggested that large families may have a higher incidence of learning problems because of distractions from homework due to overcrowding. Neifert and Gayton (1973) said there was less chance of remediation being carried out in a large family, with a resultant smaller probability of low achieving students improving their performance. Some research support for these suggestions was presented by Camlibel (1975), who found that children of average ability achieved below average when there were more than seven children in the family. Silver (1971) reported that 94% of the learning disabled children in his sample had brothers and sisters, while only 6% were only children. However, it should be noted that

this may correspond to the proportions of single-child and multiple-child families in the population. Silver noted that birth order appeared unrelated to learning disabilities; equal proportions of learning disabled students occurred for all positions. Saltsman (1975) found that learning disabled children came from significantly smaller families than did mentally retarded children. This seems at odds with research suggesting larger families for learning disabled students; however, Saltsman did not include a normally achieving group in his study.

Only one study compared groups of learning disabled and normally achieving students. Helms (1977) found no difference in the number of children in the families of LD and control group children. There are few families with more than Camlibel's critical number of seven children, so it seems probable that the present study will also find no difference between LD and control groups in terms of number of children.

Silver (1971) reported a higher incidence of adopted children in his learning disabled sample than for the population as a whole, and Silin (1978) presented an explanation of several reasons why the placement of children in families could increase the likelihood of learning disabilities. However, Silver's figures when converted to percentages are: 4% of the general population were adopted while about 6 1/2% of the learning disabled sample were adopted.

Helms (1977) reported no differences between the years of formal education for parents of learning disabled and normally achieving students. Silver (1971) found that 35.5% of the fathers of learning disabled children, and 19.1% of the mothers, held university

degrees. Saltsman (1975) found the level of parental education to be higher for parents of learning disabled children, when compared to parents of mentally retarded children; Saltsman did not include a control measure. A relationship between parental education and learning disabilities was reported by Camlibel (1975) who found that mothers with less than a grade nine education were more likely to have learning disabled children. Supporting evidence presented previously about the importance of the mother-child relationship, Camlibel found that the mother's education was more highly correlated to the incidence of learning disabilities in the children than was the father's education. It seems, however, that the mother's education may be a factor only for low educational levels.

Helms did note that more parents of regular class children were in professional occupations, as compared with parents of learning disabled children. There is, however, little indication of socio-economic differences between families of learning disabled and normally achieving children. Glaser (1974) suggested that financial pressures could produce less parental interest in the children's school performance, but Campbell (1972) reported that children with learning disabilities came from families of every income level.

In summary, it appears that demographic family factors may be related to learning disabilities only in extreme cases. Generally, in this study, it is hypothesized that factors such as family size, parental education, and socioeconomic status will not be significantly different for families of learning disabled children as compared to families of normally achieving students.

Family Relationship Factors

A number of researchers have suggested that conflict in the home or changes in the composition of the family may be related to learning disabilities (Abrams & Kaslow, 1977; Glaser, 1974). It does seem that a child who is preoccupied with problems arising from his home situation may find it difficult to concentrate on schoolwork.

Koppitz (1971) analyzed interviews with parents of 177 learning disabled children. From the information volunteered by parents, Koppitz found that 23% of the LD children had experienced severe emotional or physical neglect during the first three years of life. At the time of the interviews, 14% of the parents reported current incidents of overt rejection of their learning disabled child. Koppitz reported that in 37% of the families there was an unstable home situation: an alcoholic parent, severe parental conflict, or a one-parent family. A further 10% of the children had been placed in foster homes. Koppitz commented on the difficulty of accurately assessing the social backgrounds of the learning disabled children:

> The figures are probably too low. It was found, for instance, that some parents were unable or unwilling to share the details of their homelife with the school social worker. The parents presented the picture of a wholesome and stable family life which, it was later learned, proved not to be in accord with the facts. Intense hardship, conflicts, or periods of parental separation in the child's early life were happily put aside and no longer discussed or reported, even though they might have had a lasting effect on the child (1971, p. 26).

Owen, Adams, Forrest, Stolz and Fisher (1971) compared a group of learning disabled children to a group of normally achieving students and found that the emotional climate within the family was frequently more unfavorable for the learning disabled children. The learning disabled children lived in family environments that were less

well organized and less emotionally stable than those of a group of academically successful children. Furthermore, Owen et al. rated both mothers and fathers as expressing less affection toward their learning disabled child than toward their other children. The learning disabled children were also under more parental pressure than were their brothers and sisters.

Tseng and Sonstegard (1971) found that the manner in which parents handled family discipline was significantly correlated to the children's academic development; inconsistency between the parents was related to lower academic achievement. Strickler (1969) suggested a mechanism by which this could occur. Strickler said that the parent who does not receive adequate gratification from an unhappy marital relationship may turn to the child of the opposite sex. The result could be inconsistent discipline between the parents. Again, it seems that mothers' reactions could be particularly important, especially in relation to the development of their sons. Neifert and Gayton (1973) also stressed the importance of the parents presenting a united front and discussed the problem of one parent eroding the remedial efforts of the other parent, in working with their learning disabled child.

There is, however, evidence that parents of learning disabled children may experience more conflict than do parents of normally achieving students. When parents of normal and LD children were asked to assess their child's overall adjustment, there was significantly greater disagreement between the mothers and fathers of the learning disabled children (Wetter, 1971, 1972). Similarly, Gerber (1976) reported that the parents of learning disabled children had

significantly greater conflict about their feelings of acceptance or rejection of their child than did parents of the control group.

Grossman (1978a) administered a marital integration scale to the parents of learning disabled and control children, and reported that the parents of the learning disabled children had significantly lower marital integration scores than did the parents of normally achieving children. Campbell (1972) observed that in families of learning disabled children, one parent was markedly dominant over the other one. Campbell suggested that this could lead to a greater distortion of information given the child, than when both parents shared the responsibility for communicating with their child.

Wunderlich (1972) suggested that the effects of an ineffective parent in the home were similar to the effects of having only one parent. Wunderlich thought that the presence or absence of the father might be more related to learning disabilities in the child, perhaps because in our society children are more likely to remain with their mothers following a marital split. Friedman and Meltzer (1973) suggested that reading disorders were related to the loss or separation from a parent at the time of school entry or during the early school years.

There is some evidence that mothers of learning disabled children seem to experience more negative feelings than do mothers of normally achieving students. Freeman (1971) found that mothers of LD children reported they felt alone and excluded from outside influences more than did mothers of control children. Similarly, Merron (1978) found that mothers of LD children were more introverted and reported themselves as being significantly more anxious than did

mothers of normally achieving students. It may be that many of these feelings are related directly to the experience of dealing with a learning disabled child, while others may be related to family conflict or parental separation.

Summary

The literature review indicates not only that there is little agreement about the definition of a learning disability, but that there is also little consensus about the characteristics of a learning disabled student. Many conflicting paradigms are probably due to the lack of controlled studies; reports of correlates of learning disabilities are often based on individual case studies or observations of a small group of children identified as learning disabled. Few studies have compared a group of learning disabled students to a matched group of normally achieving children.

As the basis of the definition of learning disabilities has changed over the past fifteen years from a medical to a more educational focus, so have the factors suggested to be related to learning disabilities been modified. Studies investigating medical factors such as birth difficulties, delays in physical development, and childhood illnesses or severe injuries have found that only about 10% of the learning disabled children sampled have experienced any of these difficulties (Koppitz, 1971; Silver, 1971). Similarly, only about 10% of LD children receive medication for hyperactivity (Brown, 1969; Horner, 1977; Silver, 1971), although the incidence of observed hyperactive behaviors is much higher (Brown, 1969; Koppitz, 1971; Rugel & Mitchell, 1977; Silver, 1971; Strag, 1972).

Generally, there is more evidence of observed behaviors in learning disabled children that vary from the norm. Deficits in coordination (Brown, 1969; Owen, Adams, Forrest, Stolz & Fisher, 1971), high distractibility (Brown, 1969; Rugel & Mitchell, 1979; Silver, 1971; Tseng & Sonstegard, 1971), and hyperactivity have been most frequently noted. Both parents and teachers have rated the behavior of learning disabled children as being more negative than that of normally achieving students (Koppitz, 1971; Rugel & Mitchell, 1977; Strag, 1972); there is also some evidence that negative behavior may be a more critical factor in the referral of learning disabled boys, as compared to learning disabled girls (Koppitz, 1971; Phipps, 1977).

A focus for research might be away from attempting to determine the etiology of learning disabilities by trying to link medical factors to neurological functioning, and thus to performance in academic learning situations. Rather, the learning disabled child may be seen as a child with specific deficits in achievement, despite normal intellectual ability. In addition, this academic lag seems to often be associated with behaviors seen as negative by both parents and teachers, particularly in learning disabled boys.

Evidence has also been presented which suggests that behavior may be related to academic success (Tseng & Sonstegard, 1971). A second factor relating to the school achievement of learning disabled children is parental attitude (Chapman & Boersma, 1979b; Tseng & Sonstegard, 1971; Wetter, 1971, 1972). Initial low achievement by the learning disabled child leads to low parental expectations for future success, despite the child's average ability. There has been evidence presented to show that parents may give their learning disabled child

less positive feedback, by responding more negatively to school-related behaviors and results. Proportionately more negative feedback probably serves to maintain the child's low achievement. Therefore, it is very important to determine the attitudes and reactions of parents to their learning disabled children.

Family demographic factors such as family size (Camlibel, 1975; Glaser, 1974; Neifert & Gayton, 1973), parental education (Saltsman, 1975; Silver, 1971), and socioeconomic status (Campbell, 1972) have been studied. Generally, it appears that these factors are associated with learning disabilities only in extreme cases. For more moderate populations it is probable that family demographic factors will be similar in both learning disabled and normally achieving groups.

Relationships within the family may be related to learning disabilities (Abrams & Kaslow, 1977; Glaser, 1974; Koppitz, 1971). Studies have been presented which show that parents may contradict each other in dealing with their learning disabled child (Neifert & Gayton, 1973; Strickler, 1969; Tseng & Sonstegard, 1971) and that parents of learning disabled children experience more conflict in their marriage (Campbell, 1972; Gerber, 1976; Grossman, 1978a; Wetter, 1971, 1972). Marital conflict may eventually result in separation of the parents, and several studies have been cited which suggest that the absence of the parent, and particularly the absence of the father, might be related to learning disabilities. It does seem likely that concern with an unhappy or unsettled home situation would make it more difficult for a child to concentrate on schoolwork.

The child's relationship with his mother has been suggested to be of prime importance, and the present study is focusing on learning

disabled children as they are perceived by their mothers. Attention has been drawn to some literature which reports that mothers of learning disabled children experience negative emotions such as loneliness, isolation and anxiety to a greater degree than do mothers of normally achieving students (Freeman, 1971; Merron, 1978). It may be that mothers of LD children are less able to offer their children the support and encouragement required because their own emotional concerns and needs have not been resolved.

The conflicting and sometimes inconclusive reports of the relation of medical, behavioral, and familial factors to learning disabilities demonstrate a definite need for systematic, controlled research. In line with this, the present study proposes to:

1. Describe a representative sample of learning disabled students presently receiving learning assistance drawn from a larger population by random sampling methods, and meeting the defined requirements of normal ability and low academic achievement.
2. Compare the learning disabled sample to a control sample of normally achieving students, matched for ability, age, and socioeconomic status, on medical, behavioral and familial characteristics.
3. Investigate the relationship of sex to medical, behavioral and familial characteristics for those factors which do differentiate between the learning disabled and control groups.
4. Study the two groups of children from the perspective of their mothers' perceptions.

CHAPTER III

METHOD AND DESIGN

Subjects

The subjects for the study were grade three students chosen from eleven urban elementary public schools. About 240 children were initially screened on a short form of the Wechsler Intelligence Scale for Children - Revised (Wechsler, 1974), composed of the vocabulary and block design subtests (Sattler, 1974). The complete WISC-R was then administered to those children scoring between 85 and 120 on the short form. The screened sample included 70 learning disabled children who were receiving part-time learning assistance in a resource room, and 73 randomly selected children with normal achievement.

The learning disabled group met the defined requirements of having average ability, but deficits of 1 1/2 to 2 years in achievement. All children in the sample had full scale IQ scores between 90 and 120. The mean WISC-R full scale scores were 101.26 for the learning disabled group and 102.56 for the control group, which was not a statistically significant difference. The control group had a mean score that was 6.36 IQ points higher than that of the LD group on the verbal IQ score. Conversely, the LD group had a mean performance score that was 4.41 points higher than that of the control group. Table 1 presents the IQ and subtest scaled scores for the learning disabled and control groups.

Achievement was measured by the Wide Range Achievement Test (Jastak & Jastak, 1976), and indicated mean grade differences between the LD and control groups of 2.82 years on reading recognition, 1.81

Table 1

Wechsler Intelligence Scale for Children - Revised

IQ and Subscale Scores

Scale	LD[a]		Control[b]		t[c]	p
	Mean	*SD*	Mean	*SD*		
Full scale IQ	101.26	7.04	102.56	6.35	1.16	NS
Verbal IQ	96.96	8.53	103.32	9.32	4.25	<.001
Information	8.94	2.19	11.01	1.70	6.36	<.001
Similarities	10.49	2.12	11.07	2.71	1.43	NS
Arithmetic	9.03	2.14	10.22	2.40	3.13	<.01
Vocabulary	10.39	2.56	11.23	2.70	1.93	NS
Comprehension	9.16	2.64	9.49	3.09	.70	NS
Digit Span	8.76	2.07	10.16	2.29	3.85	<.001
Performance IQ	106.40	8.33	101.99	8.19	3.20	<.01
Picture Completion	11.36	2.49	10.53	2.57	1.94	NS
Picture Arrangement	11.77	2.26	11.47	2.49	.77	NS
Block Design	11.14	2.51	10.67	2.45	1.14	NS
Object Assembly	11.74	2.39	11.49	2.12	.66	NS
Coding	8.87	2.84	7.63	2.63	2.71	<.01

[a] n = 70

[b] n = 73

[c] df = 141

years on spelling, and 0.26 years on arithmetic subtests, with the LD means being lower on each of the three measures. Table 2 presents the scores in grade equivalents for the two groups; the achievement levels on each of the three subtests are significantly different for the learning disabled and control groups.

The two groups were also similar in age. The 70 learning disabled children had a mean age of 8.46 years (*SD* = .46) and the 73 control children had a mean age of 8.27 years (*SD* = .42).

Reasons other than ability level which led to the elimination of some children from the final sample included: absence from school during the testing, previous remedial placement of the control subjects, or serious English-as-a-second-language problems. No children were included in the sample who had serious physical, social or emotional problems.

This screened sample was further decreased when mother interview data could not be collected for all the children. Some mothers did not cooperate in completing the interviews, and some children moved before the interview could be conducted. For the 70 learning disabled children, mother interview data was obtained for 62 children, which represents a 12% reduction in the sample size. For the 73 control children, mother interview data was obtained for 69 children, producing a 5% reduction. The total sample for which mother interview data was obtained contained 131 children.

For this final sample the two groups were similar in terms of socioeconomic status, based on fathers' occupations and classified according to the Blishen Scale (Blishen, 1967). The learning disabled subjects had a mean rank of 41.53 (*SD* = 12.53) while the

Table 2

Wide Range Achievement Test

Grade Equivalent Scores

Subtest	LD[a]		Control[b]		t[c]	p
	Mean	*SD*	Mean	*SD*		
Reading	3.06	.56	5.88	1.69	13.29	<.001
Spelling	2.76	.47	4.57	.89	15.11	<.001
Arithmetic	2.87	.40	3.13	.48	3.53	<.001

[a] $n = 70$

[b] $n = 73$

[c] $df = 141$

control subjects had a mean rank of 44.02 (SD = 13.78), which are not significantly different (p = .31).

In summary, the learning disabled subjects in this study seem to be a representative sample of those children in resource rooms in eleven urban elementary schools. In agreement with previously cited sex ratios, 43 of the 62 learning disabled children were boys (69%), while only 19 were girls (31%). The numbers of boys and girls in the control groups were 40 and 29, respectively. The learning disabled children were similar to the normally achieving subjects in terms of full scale IQ, age and socioeconomic background. However, the LD subjects performed at statistically significant lower levels on reading recognition, spelling and arithmetic achievement subtests of the Wide Range Achievement Test, as compared to the control group. Therefore, the learning disabled children met the definition by having normal intellectual ability, but academic deficits of 1 1/2 to 2 years in one or more school subjects.

Interview Schedule

An interview schedule was designed for use in interviewing the mothers of the children in the study. Areas of interest were defined from a survey of some of the attributes of learning disabled children presented in the literature. Specific questions were provided with a choice of responses so that the mothers' answers for any given question could be easily categorized and coded for analysis. Many categories were nominal in that mothers could respond either "yes" or "no". The mothers' observations about their children's behavior, as well as questions concerning the presence of specific medical

problems, were of this nature. Other questions, in which a choice of responses were ordered from less to more of an attribute or quality, produced ordinal data. Finally, some questions, such as those using intervals to classify the ages of parents, produced interval data.

The interview schedule was divided into sections. The first dealt with the early history of the child and asked questions about the birth of the child and subsequent medical problems. The second section presented thirteen yes-no items designed to indicate each mother's observations and perceptions of her child's behavior. A third section tapped the mothers' attitudes, perceptions and expectations about their children's progress in school. Questions about the family included both demographic data such as ages, education, income and occupations of the parents, as well as information about the mother's current marital status and parental living arrangements. A final section presented a four-choice ordinal scale of mothers' feelings (see Appendix for mother interview schedule).

Procedure

Data from the mothers was obtained by two female interviewers, usually within four weeks of the children being assessed in school and assigned to groups. Prior to the mother interviews, letters were mailed to the homes of the selected children, explaining the nature of the study and asking for the mothers' cooperation. Mothers were selected because of their importance as significant others in the lives of their children, and because mothers are generally more available than are fathers for participating in research interviews.

The mothers were told that the study dealt with correlates of school learning and that their children had been chosen to participate in the research because of their "normal" activities. Following the mailing of the letters each mother was individually contacted by telephone by one of the interviewers, in order to obtain her consent to be interviewed and to set a convenient appointment time.

The interviews were conducted in the children's homes, usually when the children were not present. Each item was read aloud by the interviewer, in order to minimize problems in reading the questions. Clarification of the items was given if the mother requested it or if the interviewer thought a mother's response was an inaccurate estimate. For example, on questions where an estimated number of occurrences was required, the interviewer could ask the mother to "count the number of times" in the last week, or month, in order to obtain more accurate responses. Observations of the interviewer or additional information volunteered by the mother could be noted in the margins of the interview schedule. For example, some mothers refused to answer certain questions while others willingly volunteered details of the child's history or the family situation. Generally, the mother interviews required 1 to 1 1/2 hours to complete.

Hypotheses

Studies relating learning disabilities to prenatal and medical problems have generally been inconclusive. One of the major difficulties has been the relatively low incidence of medical problems in groups of learning disabled children. Few studies have dealt with the question of the remaining learning disabled students who do not

have a history of birth or medical difficulties. It seems that the incidence of medical factors reported for various learning disabled samples may be the same as that in the population as a whole. Therefore, it was predicted that:

> 1.1 There will be no significant difference between learning disabled and control groups of students on the basis of medical factors, as reported by their mothers.

There is some evidence that one factor which does differentiate between learning disabled and normally achieving students is observed physical coordination (Brown, 1969; Owen, Adams, Forrest, Stolz and Fisher, 1971). It seems possible that poor coordination could be associated with some of the negative behaviors observed and reported. It is also possible that poor coordination could be related to the observed difficulties of learning disabled children in written expression, as compared to oral. Since the definition of learning disabilities specifies low achievement, regardless of sex, there will probably not be a sex difference. Therefore, it was predicted that:

> 2.1 A greater number of mothers of learning disabled children will indicate that their children have problems with physical coordination, as compared to positive responses from mothers of control subjects.

The research indicates that parents and teachers alike rate the observed behaviors of learning disabled children as being more negative than those of normally achieving students. Furthermore, some studies have indicated that one factor related to higher referral rates for learning disabled boys is the greater incidence of negative behavior problems for boys. Teachers have reported finding behavior problems more serious than academic problems, perhaps because they find behavior problems comparatively more difficult to deal with. It seems probable

that parents may also find negative behavior frustrating in that they lack strategies for changing behavior. Accordingly, it was hypothesized that:

> 3.1 There will be significant differences between the behaviors of learning disabled children and control children, as observed and reported by their mothers.
>
> 3.2 The differences between learning disabled and control boys, in terms of behavior, will be greater than between the two groups of girls.

Attention has been drawn to studies indicating that parents' expectations for their children's future academic success are determined by previous achievement levels. Since learning disabled children by definition will have lower achievement levels in some specific subjects, it seems probable that their parents' expectations will be correspondingly lower than those of parents of normally achieving students. Therefore, it was hypothesized that:

> 4.1 There will be a significant difference in the mothers' estimates of their children's abilities and expected success in academic tasks between the mothers of learning disabled children and the mothers of normally achieving students, with the estimates made by mothers of LD children being lower.

Studies investigating the relation of family demographic factors such as family size, and parental education, occupation or income to learning disabilities have generally been inconclusive. Again, many studies lack a control sample so that it is difficult to state unequivocally that learning disabled samples differ from the general population on any of these variables. There is some indication that family demographic factors may become salient only for extreme values, as, for example, when the number of children in the family exceeds seven, or when the parents' education level is below grade nine

(Camlibel, 1975). The proportion of extreme values present in the urban population from which the samples were drawn is probably quite low. Therefore, it was hypothesized that:

5.1 There will be no significant difference between the family demographic factors of learning disabled and normally achieving students, as reported by their mothers.

A number of studies have been cited which show that families of learning disabled children experience more parental conflict than do families of normally achieving children. It seems reasonable that concern with an unhappy or unsettled home situation could adversely affect a child's ability to concentrate on schoolwork. Furthermore, there is some evidence that mothers of learning disabled children experience high negative emotions, a finding that may be important in differentiating between the two groups in view of the strong mother-child relationship at early ages. Therefore, it was hypothesized that:

6.1 There will be a significant difference in the family relationships and stability of families with a learning disabled child and families of normally achieving students, with families of learning disabled children having a higher incidence of parental separation.

6.2 Mothers of learning disabled children will report experiencing significantly more negative emotions than will mothers of normally achieving students.

Design

The hypotheses in this study were tested by two methods. Chi-square analyses of frequencies were used to test hypotheses relating to items on the questionnaire where responses were placed in normative groups, while *t*-tests comparing means were used to analyze interval data. Sex differences were studied by comparing

learning disabled girls to control girls, and learning disabled boys to control boys, using the appropriate chi-square or *t*-test method. Sex differences were studied for only the variables which showed a differentiation between the learning disabled and normally achieving groups.

CHAPTER IV

RESULTS

The results of responses to questions on the mother interview schedule related to each of the factors will be presented separately. Data for the final sample of 131 grade three children will be presented. Results of chi-square analyses and *t*-tests will be summarized in separate tables, but the findings will be considered together.

Medical Factors

The results of the chi-square analyses for the medical factors generally supported the hypothesis of no significant difference between learning disabled and control groups. Chi-square values and probabilities are presented in Table 3. Table 3 also shows the proportions of learning disabled and control children whose mothers reported difficulties for each of the medical variables; proportions for either group did not exceed .25 of the cases.

One variable which approached significance at the .05 level was incidence of serious childhood illness ($p < .10$). However, separating the groups further, according to sex, showed no significant differences between LD and control groups (see Table 4).

The large probabilities for certain variables are particularly interesting in view of some the recent popular notions linking learning disabilities to allergic reactions; this study's findings do not support such a relation.

In sum, as far as LD and control group differences are concerned, the results of this study suggest that medical variables are not differentiating factors. Two exceptions, which are rather closely

Table 3

Chi-square Summary Data for Medical Factors for LD and Control Groups

	Proportions				
	LD	Control	*df*	Chi-square	*p*
Ease of delivery[a]	.23	.16	2	1.58	NS
Premature birth[a]	.03	.07	1	1.08	NS
Serious illness	.18	.07	1	3.36	<.10
Serious accident	.06	.03	1	.94	NS
Problems with:					
Speech	.18	.13	1	.56	NS
Vision	.16	.13	1	.25	NS
Hearing	.08	.06	1	.26	NS
Coordination	.18	0	1	13.36	<.001
Other	.11	0	1	8.23	<.005
Medical history of:					
Frequent colds	.18	.10	1	1.59	NS
Allergies	.23	.23	1	.01	NS
Stomach problems	.15	.12	1	.25	NS
Head colds	.08	.07	1	.03	NS
Nightmares	.08	.10	1	.17	NS
Bedwetting	.15	.15	1	.00	NS

[a] $n = 128$: Delivery information was not reported for two adopted children in the control group, and one adopted child in the LD group.

Table 4

Chi-square Summary Data for Selected Medical Factors for LD and Control Groups Analyzed by Sex

	Chi-square[a]	Probability
Serious illness:		
Boys	1.51	NS
Girls	2.10	NS
Coordination problems:		
Boys	8.24	<.005
Girls	4.88	<.05
Other problems:		
Boys	6.02	<.05
Girls	1.56	NS

[a] $df = 1$

related to behavioral and educational factors, will be discussed subsequently.

Physical Coordination

The findings concerning the physical coordination of learning disabled and control groups are consistent with the hypothesis that significantly more learning disabled children's mothers would indicate that their children had problems with coordination. This finding is consistent with research reported earlier, where it was noted that poor coordination may be linked to negative behavior observations.

Both learning disabled girls and boys differed significantly from their same-sex control group in coordination. In other words, both boys and girls from the LD groups are seen by their mothers as being poorly coordinated.

None of the mothers of children in the control group reported problems in coordination. The frequencies for learning disabled boys and girls were, respectively, 8 out of 43, and 3 out of 19. Therefore, a total of 11 LD children were seen as being poorly coordinated (X^2 = 13.36; df = 1; $p < .001$). Chi-squares and probabilities for the comparisons of same-sex LD and control groups are presented in Table 4.

Other Medical Factors

Significantly more mothers of learning disabled children as compared to mothers of control children indicated that their children had other medical problems (X^2 = 8.23; df = 1; $p < .005$). As for coordination, none of the mothers of the children in the control group reported other medical problems.

A count of the frequencies showed that mothers of six of the boys and one girl in the LD group reported other medical problems. Same-sex comparisons were significant in differentiating between learning disabled and control boys, but not in differentiating between girls in the two groups (see Table 4).

However, four of the seven children with other medical problems were reported by their mothers to have "dyslexia", "mirror vision", and "reversals" which might be interpreted as educational, rather than medical problems. The remaining three medical problems were: respiratory illness, bladder infection, and a deformed foot corrected by surgery.

Behavioral Factors

The results of a t-test between means for the total negative behavioral ratings of learning disabled and control children supported the hypothesis of a significant difference ($t = 3.97$; $df = 129$; $p < .001$). Means and standard deviations are presented in Table 5, and show that the learning disabled children were ranked by their mothers as displaying more negative behaviors than the control children. This finding of comparatively more negative behavior for the learning disabled group was similar for boys and for girls, as well as for the group as a whole. It should be noted, however, that the probability of a difference between the two groups was somewhat greater for boys ($p < .001$) than for girls ($p < .05$).

The findings for the thirteen variables comprising the total negative behavioral score differ widely, with probabilities ranging from .000 to .876. Chi-square values and probabilities for each of the questionnaire items are presented in Table 6, as are the

Table 5

Means, Standard Deviations and *t*-values for

Total Negative Behavioral Data

	LD		Control				
	Mean	*SD*	Mean	*SD*	*df*	*t*	*p*
Total group	2.61	2.09	1.28	1.76	129.00	3.97	<.001
Boys	2.74	2.23	1.25	1.51	75.97	3.60	<.001
Girls	2.32	1.77	1.31	2.09	46.00	1.73	<.05

Note. The boys' LD group had significantly greater variance than did the boys' control group ($p < .05$), so a Welch method of computing the *t*-value was used.

Table 6

Chi-square Summary Data for Behavioral Factors for LD and Control Groups

	Proportions			
	LD	Control	Chi-square	*p*
Negative behaviors:				
Nervous habits	.39	.25	3.01	<.10
Temper tantrums	.16	.04	5.07	<.05
Distractibility	.60	.19	23.08	<.001
Irritability	.06	.06	.02	NS
Anxiety	.16	.12	.57	NS
Depression	.10	.03	2.62	NS
Shyness	.27	.25	.13	NS
Over-aggressiveness	.10	.04	1.45	NS
Negative attitude	.24	.12	3.58	<.10
Frequent lying	.10	.03	2.62	NS
Persistent stealing	.05	.01	1.27	NS
Destructiveness	.06	0	4.59	<.05
Hyperactivity	.34	.14	6.79	<.01
Medication for hyperactivity	.15	.04	4.06	<.05

[a] $df = 1$

proportions of children in each group for the thirteen variables.

Some behaviors which do not appear to differentiate between learning disabled and control children, as seen and reported by their mothers, are: irritability, anxiety, shyness, over-aggressiveness or persistent stealing. Another group of behaviors, although not significant at the .05 level, had chi-square values approaching the critical value at which one would conclude that the two groups were statistically different. Behaviors approaching significance included: nervous habits, depression and frequent lying.

The factor for which the greatest difference was found between the two groups was distractibility ($\chi^2 = 23.08$; $df = 1$; $p < .001$). Distractibility or inability to concentrate was indicated by mothers to be a trait of both learning disabled and normally achieving children, but the proportions of distractible children in the two groups were markedly different. About 19% of the control children were seen as distractible, while 60% of the learning disabled children were reported as distractible. Table 7 presents chi-square values which show that LD boys are significantly more distractible than control boys ($p < .001$), and LD girls are significantly more distractible than control girls ($p < .001$).

A second factor which discriminated between LD and control groups was temper tantrums or uncontrolled emotions ($\chi^2 = 5.07$; $df = 1$; $p < .05$). For same-sex comparisons, the chi-square value for boys was greater than that for girls, but neither significantly differentiated between learning disabled and control same-sex groups (see Table 7).

Table 7

Chi-square Summary Data for Selected Behavioral Factors for LD and Control Groups, Analyzed by Sex

	Chi-square	Probability
Nervous habits:		
Boys	2.80	<.10
Girls	.46	NS
Temper tantrums:		
Boys	3.52	<.10
Girls	2.10	NS
Distractibility:		
Boys	12.25	<.001
Girls	10.39	<.001
Negative attitude:		
Boys	1.62	NS
Girls	2.11	NS
Destructiveness:		
Boys	3.91	<.05
Girls	0.00	1.00[a]
Hyperactivity:		
Boys	7.27	<.01
Girls	.04	NS
Medication for hyperactivity:		
Boys	6.64	<.01
Girls	1.37	NS

[a]No mothers reported girls as being destructive.

A third factor differentiating between LD and control groups was destructiveness. The frequencies reported for this behavior were very low. No girls and no control subjects, whether male or female, were reported as being destructive; only four boys from the learning disabled group were rated by their mothers as destructive. The difference between learning disabled and normally achieving students was significant for the total group ($\chi^2 = 4.59$; $df = 1$; $p < .05$), as well as for the boys ($p < .05$).

The factors for which the second greatest difference was found between the two groups was hyperactivity. The finding in this study of distractibility and hyperactivity being prime means of differentiating between learning disabled and normally achieving students supports previously cited research that these two behaviors are often observed in learning disabled children. However, there is a sex difference in observations of hyperactivity; learning disabled and control girls were similar in their ability to sit still, as observed by their mothers, whereas for boys the difference between the two groups was statistically significant ($\chi^2 = 7.27$; $df = 1$; $p < .01$). Boys seem to be more hyperactive than girls. The percentages of learning disabled and control boys were 42% and 15%; for girls the corresponding percentages were 16% and 14%.

Similarly, significantly more mothers of learning disabled children reported that their children were receiving, or had received, medication for hyperactivity. Only about 40% of the reported hyperactive children had ever received medication. Interestingly, half the control girls reported to be hyperactive had received medication, while none of the three cases of hyperactive learning

disabled girls had ever been on medication for hyperactivity. As reported for the incidence of hyperactivity, the difference between learning disabled and control children having received medication for hyperactivity was significant for the total group ($\chi^2 = 4.06$; $df = 1$; $p < .05$), and for boys ($p < .01$). There was no difference in medication between the two groups of girls.

Academic Achievement

The definition of learning disabled children states that they have a deficit in academic achievement of at least 1 1/2 to 2 years. Since the learning disabled sample of this study was chosen in accordance with the definition, the mothers' responses to questions about educational background should show the achievement of learning disabled children to be significantly lower. This was supported by the findings of this study.

A summary of chi-square values and probabilities for educational background factors is presented in Table 8; Table 9 presents an analysis of the significant findings by sex.

Table 8 shows that significantly more learning disabled students had repeated a grade by the time they had reached grade three ($\chi^2 = 11.80$; $df = 1$; $p < .001$). However, a sex difference was found; the difference between learning disabled and control children repeating a grade was significant for boys, but not for girls (see Table 9). There was no difference between the learning disabled and control groups in terms of the children having attended kindergarten.

The literature suggested that low achievement necessitating repeating a grade could be related to family mobility. A child that had his educational program disrupted, particularly during the school

Table 8

Chi-square Summary Data for Educational Factors

for LD and Control Groups

	df	Chi-square	Probability
Repeating a grade	1	11.80	< .001
Attending kindergarten	1	.25	NS
Having a reading problem	1	68.93	< .001
Parent helping with reading	2	10.60	< .005
Parent helping with schoolwork (No. of times per week)	5	11.31	< .05
Time spent on recreational reading	3	19.30	< .001

Table 9

Chi-square Summary Data for Selected Educational Factors for LD and Control Groups, Analyzed by Sex

	df	Chi-square	Probability
Repeating a grade:			
Boys	1	11.80	<.001
Girls	1	.97	NS
Having a reading problem:			
Boys	1	40.07	<.001
Girls	1	29.45	<.001
Parent helping with reading:			
Boys	2	10.90	<.005
Girls	2	1.49	NS
Parent helping with schoolwork: (No. of times per week)			
Boys	5	8.90	NS
Girls	5	6.66	NS
Time spent on recreational reading:			
Boys	3	9.07	<.05
Girls	3	12.64	<.01

year, could miss some concepts and eventually fall behind his peers. A comparison of the average number of schools attended by the two groups approached, but did not reach significance (LD M = 1.69, Control M = 1.45; t = 1.54; df = 129; $p < .10$). Same-sex comparisons of the two groups showed no significant difference for boys or girls. Tabulating frequencies indicated that 28% of the control sample and 45% of the LD sample had attended two or more schools by grade three. Seven control children and eleven LD children had attended between three and five schools.

In accordance with the definition, Table 8 reveals that significantly more mothers of learning disabled children reported that their child had a reading problem (X^2 = 68.93; df = 1; $p < .001$). Similar levels of significance were found for LD and control groups of boys, and girls. Significantly more mothers of learning disabled children reported that they helped their children with reading, and the time each week that mothers of learning disabled children said they spent helping with schoolwork was significantly greater than that reported by mothers of the control children. However, these differences did not extend to all of the same-sex comparisons. Mothers of LD boys reported spending significantly more time helping their sons with reading, but when asked to specify the number of times in a week that they helped with schoolwork, there was no difference between the estimates of mothers of LD and control boys. For the girls, there was no difference between the two groups in terms of their mothers' reports of helping with reading, or the time estimated for helping with schoolwork.

One would expect that children experiencing difficulty with

reading and requiring parental help in developing reading skills would not choose to read independently for enjoyment. The findings of this study support that relationship. A significant difference was found in the amount of time spent on recreational reading by learning disabled and normally achieving students (X^2 = 19.30; df = 3; $p < .001$). For example, nine of the control children's mothers reported that their children spent at least an hour a day on recreational reading, while none of the mothers of the LD groups reported more than one hour. Similarly, significantly more boys and more girls from the control group spent a greater amount of time on recreational reading than did their same-sex counterparts in the learning disabled group.

Parental Perceptions and Expectations

The mothers' perceptions of their children's ability to learn, and the expectations for future academic success were significantly lower for the learning disabled children. The mothers' rankings of their children's abilities in five school subjects were totalled, and the totals were significantly lower for the LD group (LD M = 14.44, Control M = 19.43; df = 129; t = -9.61; $p < .001$). Significant differences were also found for each of the five subjects on which the children's abilities were ranked: arithmetic, printing/writing, reading, spelling and language. Same-sex analyses of findings for each of the five subjects as well as the total ability ranking also showed the learning disabled children to be significantly lower in terms of their mothers' perceptions and expectations.

Table 10 presents means, standard deviations and t-values for the total group, boys and girls for each of the five subjects and the total ability rankings. It should be noted that the mean ability

Table 10

Means, Standard Deviations and *t*-values for

Mothers' Perceptions of their Children's Ability

	LD		Control				
	Mean	*SD*	Mean	*SD*	*df*	*t*	*p*
Arithmetic:	3.23	.76	3.75	.96	129	-3.47	<.001
Boys	3.30	.77	3.95	.88	81	-3.58	<.001
Girls	3.05	.71	3.48	1.02	46	-1.73	<.05
Printing/Writing:	3.05	.84	3.65	.98	129	-3.76	<.001
Boys	3.04	.92	3.53	1.04	81	-2.22	<.05
Girls	3.05	.62	3.83	.89	46	-3.30	<.001
Reading:	2.56	.76	4.19	.79	129	-11.95	<.001
Boys	2.63	.85	4.15	.80	81	-8.40	<.001
Girls	2.42	.51	4.24	.79	46	-8.93	<.001
Spelling:	2.61	.71	4.01	.74	129	-11.06	<.001
Boys	2.65	.78	4.00	.64	81	-8.55	<.001
Girls	2.53	.51	4.03	.87	46	-6.84	<.001
Language:	2.92	.66	3.83	.77	129	-7.22	<.001
Boys	2.98	.71	3.83	.78	81	-5.20	<.001
Girls	2.79	.54	3.83	.76	46	-5.17	<.001
Total Ability Ranking	14.44	2.65	19.43	3.23	129	-9.61	<.001
Boys	14.70	3.01	19.45	3.08	81	-7.10	<.001
Girls	13.84	1.46	19.41	3.48	46	-6.59	<.001

rankings for the control group are consistently and significantly higher than those for the learning disabled group.

Chi-square analysis of another global estimate of the child's "ability to learn", made by each mother, also produced a significant difference between learning disabled and control groups (x^2 = 46.78; df = 4; $p < .001$). Table 11 shows that none of the mothers stated that their child's ability to learn was poor, but the percentages of mothers ranking their children's abilities in each of the other four categories varied considerably. For example, only 16% of the mothers of learning disabled children stated that their children's ability was excellent or above average, while 74% of the mothers of normally achieving children chose these two categories. Conversely, 11% of the mothers of LD children chose "below average" to describe their child's ability to learn, whereas none of the mothers of control children chose that category.

Parents' expectations for future academic success were measured by asking the mothers to estimate their child's "ability to complete university". Again, chi-square analysis of the responses showed that mothers of learning disabled children ranked their children's ability to complete university as significantly lower (x^2 = 27.92; df = 3; $p < .001$). The frequencies of responses differed between mothers of the two groups, with 32% of the mothers of learning disabled children choosing "no" or "probably not", while only 1% of the mothers of control children chose those categories. Conversely, the percentages of mothers choosing "yes, definitely" were 13% for the learning disabled group and 39% for the control group.

Same-sex comparisons for both ability to learn and ability to

Table 11

Chi-square Summary Data for Mothers' Perceptions and Expectations for LD and Control Groups

	df	Chi-square	Probability
Ability to learn	4	46.78	<.001
Ability to complete university	4	27.92	<.001
Importance of grades to mother	3	3.33	NS
Importance of grades, as compared to other aspects of school	3	2.74	NS
Importance of grades to child	3	17.59	<.001

complete university also showed the expectations of mothers of learning disabled children to be significantly lower. Chi-square values and probabilities associated with sex are presented in Table 12.

In sum, these findings support the hypothesis that learning disabled and control children would be clearly differentiated in terms of their mothers' estimates of the children's abilities and expected success in academic tasks. The estimates of the mothers of learning disabled children were, as hypothesized, consistently lower.

The literature has suggested that lower expectations for achievement on the part of parents may serve to maintain low achievement. The mothers in this study indicated that they believed their learning disabled children to be less capable of achieving well, despite the fact that the ability levels of both learning disabled and normally achieving children were between 90 and 120, as measured by the WISC-R, and there were no statistically significant differences between the groups in terms of mean IQ scores.

Other findings suggest that mothers of both learning disabled and control children think grades obtained in school are important, but the mothers of learning disabled children think their children do not understand or accept the importance of good grades. Questions asking the mothers to rate the "importance of grades", and to rate the importance of grades in comparison to other aspects of school life, revealed no significant difference between the two groups of mothers (see Table 11). All of the parents indicated that grades mattered to them. There was a significant difference when mothers were asked to rate the "importance of grades to their children" (χ^2 = 17.59;

Table 12

Chi-square Summary Data for Selected Mothers' Perceptions and Expectations for LD and Control Groups, Analyzed by Sex

	df	Chi-square	Probability
Ability of child to learn:			
Boys	4	28.16	<.001
Girls	4	20.03	<.001
Ability of child to complete university:			
Boys	3	17.78	<.001
Girls	3	11.51	<.01
Importance of grades to child:			
Boys	3	7.94	<.05
Girls	3	10.00	<.05

$df = 3$; $p < .001$). Analysis of the frequencies of responses showed that 76% of the mothers of control children felt that their children liked to get better grades than everyone else or almost everyone else, whereas only 32% of the mothers of learning disabled children chose those two categories. Conversely, 15% of the mothers of LD children indicated that their children did not care about grades, while only 4% of control mothers felt their children did not care about grades.

These findings suggest that generally mothers of normally achieving students and their children agree about the importance of grades. The mothers of learning disabled children also think grades are important, but they do not think their children are able to achieve good grades, and they do not think their children care about getting good grades.

Family Factors

In general, the responses to questions about demographic family variables supported the hypothesis that there would be no significant differences between the learning disabled and control groups. Table 13 presents chi-square values and probabilities for the responses to questions dealing with the proportion of adopted children, the age of the mother, the education of both parents, and family income. None of the findings are significant.

Similarly, findings in regard to family size are non-significant (see Table 14). The one difference between groups approaching significance was the number of adults living in the home (LD $M = 1.79$; Control $M = 1.93$; $df = 129$; $t = -1.6$; $p < .10$). Analyzing the

Table 13

Chi-square Summary Data for Family Demographic Factors for LD and Control Groups

	N	*df*	X^2	*p*
Relationship of child to mother[a]	131	3	.01	NS
Age of mother	128[b]	6	3.83	NS
Education of father	120[c]	6	7.38	NS
Education of mother	131	6	3.97	NS
Family income	131	7	7.68	NS

[a]Two were adopted in each group.

[b]Unknown for the mothers of the three adopted children.

[c]Eleven mothers did not specify the father's education; these eleven mothers were no longer living with the father of the child.

Table 14

Means, Standard Deviations and *t*-values for

Family Demographic Factors

	LD		Control			
	Mean	*SD*	Mean	*SD*	t^a	*p*
No. of children in family	2.84	1.53	2.88	1.62	-0.16	NS
No. of children living in home	2.66	1.23	2.59	1.19	.32	NS
No. of adults living in home	1.79	.52	1.93	.46	-1.60	<.10

[a] $df = 129$

frequencies showed that 26% of the families of learning disabled children, and 16% of the control families, had only one parent in the home. This finding may be closely related to the family relationship variables to be presented subsequently.

Family Relationship Factors

The variables differentiating learning disabled children from the control group seem related to the absence of fathers from the families. Looking at the results presented in Tables 15 and 16, the factors which are significant, or approach significance, are whether or not the mother is currently married to the child's father, and the amount of time spent with the child by the father.

For the total group, significantly fewer mothers of learning disabled children than expected were currently married to their child's father ($X^2 = 7.61$; $df = 1$; $p < .01$). The difference approached but did not reach significance for a comparison of learning disabled and control boys ($p < .10$) and learning disabled and control girls ($p < .10$). There were no significant effects relating to whether or not the mother was currently married, the number of times the mother had been married, or the length of time the mother had been married to her current husband.

There is some evidence that more learning disabled children have families which have experienced parental conflict. Firstly, there is the finding just cited that there was a highly significant difference between families of learning disabled and control children in terms of whether or not the child's mother and father were still married to each other. Analysis of the obtained frequencies indicated that 37%

Table 15

Chi-square Summary Data for Family Relationship Factors for LD and Control Groups

	Chi-square[a]	Probability
Mother currently married	1.94	NS
Mother currently married to child's father	7.61	<.01
Child's attendance at a day care center	1.47	NS
Separation of mother from child[b] (for more than one month)	.85	NS

[a] $df = 1$

[b] $N = 130$; information unavailable for one control child who was not adopted until age 6.

Table 16

Means, Standard Deviations and *t*-values for

Family Relationship Factors

	LD		Control				
	Mean	*SD*	Mean	*SD*	*df*	*t*	*p*
No. of times mother married	1.10	.43	1.07	.26	129	.38	NS
Length of time mother married to current husband (in months)	146.85	60.95	159.02	68.43	111	-.99	NS
No. of hours per week child spends with male living in home	1.79	1.33	2.13	1.08	129	-1.61	<.10
No. of hours per week child spends with mother	3.03	.96	3.05	.89	129	-.16	NS
Age of child when separation of parents occurred	38.63	32.85	37.80	22.17	30	.07	NS

of the parents of learning disabled children were separated, while only 16% of the parents of the control group were separated. Secondly, more of the separated mothers of learning disabled children reported that their children did not see their fathers. Thus, there may have been more conflict in families where the child and father did not visit each other. Although a chi-square analysis was not significant at the .05 level ($\chi^2 = 2.76$; $df = 1$; $p < .10$), there does appear to be some difference between the learning disabled and control groups. With the probability level obtained, one can be 90% confident that there is a significant difference between the two groups. Because of the small number of subjects in each group, it is useful to look at percentages. Of the 21 learning disabled children whose fathers were no longer living with their families, 62% did not see their fathers. For the 10 children in the comparable control group, only 30% did not see their fathers. The percentages were similar for the same-sex comparisons. For example, 63% of learning disabled boys, and 60% of learning disabled girls did not see their fathers.

The literature review noted the relatively high incidence of learning disabilities among boys as compared to girls. Boy to girl ratios ranging from 8:1 to 4:1 were reported. In this study, the proportions of family separations for families of boys and girls were similar. Out of a total of 31 reported parental separations, 23% were in girls' families, while 77% were in boys' families, thus producing a boy to girl ratio of about 3 1/2 to 1. Furthermore, for parental separations occuring in families of learning disabled children, the proportions were identical: 23% of the separations

occurred in girls' families, and 77% in boys' families.

The families of learning disabled children differed from those of the control group not only in the greater number of separations for the LD children's parents, but also in the number of mothers that had remarried. Looking at the frequencies, there were seven mothers that had separated from the father of their learning disabled child and subsequently married another man; none of the separated mothers of the control children had remarried. The observed frequencies were statistically different from those expected ($X^2 = 4.22$; $df = 1$; $.02 < p < .05$).

The number of hours per week each child spent with his father or the male living in the home approached significance (LD $M = 1.79$, Control $M = 2.13$; $df = 129$; $t = -1.61$; $p < .10$). Generally, the children in the control group had more time spent with them by their fathers, who were still part of the family. The difference between the learning disabled and control groups may be partly due to the greater number of learning disabled families where there was no male; 16 learning disabled and 11 control families were single-parent families. However, there were 7 learning disabled families where the mother had remarried. It is possible that these step-fathers might spend less time with the children in comparison to the control group's natural fathers. Same-sex comparisons did not show a significant difference between the number of hours spent with fathers by learning disabled or control groups of boys ($p < .20$) or girls ($p < .10$).

The number of hours per week each child spent with his mother was not significantly different for the two groups. There was also no difference between the learning disabled and control groups in

terms of having attended a day care centre or having been separated from the mother for more than a month (see Tables 15 and 16).

The variable discriminating between learning disabled and control groups was whether or not the parents were separated, with the resulting presence or absence of the father in the home. The child's age when the parental separation occurred did not appear to be critical. There was no significant difference between the two groups, in terms of the child's age when his parents' separation occurred. Even when one separates the cases where the parental separation occurred before the child was five years old from those where the separation occurred during the child's school years, the difference is not significant ($X^2 = .857$; $df = 1$; $.30 < p < .50$).

In summary, the hypothesis that there would be a significant difference in the family relationships and stability of families with a learning disabled child and families of normally achieving students was supported. The families of learning disabled children had a significantly higher incidence of parental separation. Furthermore, there was a significantly greater rate of remarriage for separated mothers of learning disabled children. The above suggests that the home environment of some LD children may be less stable than that of normally achieving children.

Mothers' Emotions

Most of the feelings reported by the mothers did not differentiate between the mothers of the two groups (see Table 17). However, two statements did elicit significantly different responses from mothers of LD children and mothers of normally achieving children. More mothers of LD children reported feeling lonely (LD $M = 1.87$,

Table 17

Means, Standard Deviations and *t*-values for Mothers' Reported Feelings

	LD		Control				
	Mean	*SD*	Mean	*SD*	*df*	*t*	*p*
Concern about present money	1.95	.88	1.72	.86	129	1.50	<.10
Feeling lonely	1.87	.82	1.61	.62	115.07	2.04[a]	<.05
Worrying about child's school achievement	2.73	.85	1.74	.74	129	7.09	<.001
Feeling relaxed	2.11	.73	2.04	.65	129	.58	NS
Problems disciplining children	1.95	.64	1.99	.58	129	-.32	NS
Worrying about ability to cope	2.00	.83	1.88	.72	129	.86	NS
Enjoying life	1.58	.62	1.54	.50	129	.45	NS
Worrying about money in the future	1.94	.87	1.90	.84	129	.25	NS
Feeling depressed	1.90	.56	1.91	.37	105.37	-.12[a]	NS
Having difficulty finding babysitters	1.40	.61	1.55	.58	129	-1.41[a]	<.10
Total	19.11	4.82	17.88	3.70	115.59	1.62	<.10

[a]Unequal variance ($p < .05$); *t*-values adjusted using Welch *t*-test.

Control M = 1.61; df = 115.07; t = 2.04; $p < .05$). Similarly, more mothers of LD students reported that they worried more about their child's school achievement (LD M = 2.73, Control M = 1.74; df = 129; t = 7.09; $p < .001$).

Table 18 presents same-sex analyses of the responses of the two groups of mothers. These results showed that mothers of both learning disabled girls and boys worried about their children's school achievement significantly more than did mothers of the control children ($p < .001$). Mothers of learning disabled girls reported feeling significantly more lonely than did mothers of girls in the control group ($p < .005$). However, there was no difference in the reported loneliness of mothers of the two groups of boys. Looking at the means for reported loneliness, mothers of control girls reported an average ranking of .10 points lower than did mothers of control boys. Conversely, mothers of LD girls reported an average ranking of .42 points higher than did mothers of LD boys.

Several LD-control differences approached significance as revealed in Table 17. There was a tendency for mothers of learning disabled children to report comparatively more concern about having enough money. There was also a tendency for mothers of normally achieving students to report having more difficulty finding baby-sitters. The total negative emotions reported by mothers of learning disabled children tended to be greater than those of control mothers.

In general, the comparison of negative feelings reported by the mothers lent some support to the hypothesis that mothers of learning disabled children would report experiencing significantly

Table 18

Means, Standard Deviations and *t*-values for Selected Mothers' Reported Feelings, Analyzed by Sex

	LD		Control				
	Mean	*SD*	Mean	*SD*	*df*	*t*	*p*
Concern about present money:							
Boys	2.00	.93	1.70	.85	81	1.53	<.10
Girls	1.84	.76	1.76	.87	46	.34	NS
Feeling lonely:							
Boys	1.74	.82	1.65	.58	77.41	.61[a]	NS
Girls	2.16	.76	1.55	.69	46	2.86	<.005
Worrying about child's school achievement:							
Boys	2.70	.86	1.75	.78	81	5.26	<.001
Girls	2.79	.86	1.72	.70	46	4.72	<.001
Having difficulty finding babysitters:							
Boys	1.42	.59	1.58	.59	81	-1.21	NS
Girls	1.37	.68	1.52	.57	46	-.81	NS
Total:							
Boys	18.86	5.33	17.68	3.78	77.46	1.17	NS
Girls	19.68	3.45	18.17	3.63	46	1.44	<.10

[a]Unequal variance ($p < .05$); *t*-values adjusted using Welch *t*-test.

more negative emotions than would mothers of normally achieving students. Definite support for the hypothesis was provided by two variables which differentiated between the two groups: loneliness and concern about the child's school achievement.

CHAPTER V

DISCUSSION

The value of the present study lies in its comparison of a group of learning disabled children to a matched group of normally achieving students. Conclusions regarding the differences between learning disabled students and others have often been based only on study of a learning disabled group.

The findings of the present study generally supported the hypothesis that there would be no significant differences between the two groups in terms of medical factors. Much of the reviewed literature has suggested that learning disabled children could be identified on the basis of birth and medical difficulties. However, those conclusions were reached after researching the incidence of medical problems within samples of learning disabled children, with little attempt to determine the incidence in the population as a whole. The percentages of learning disabled children reported as having prenatal, perinatal or childhood medical problems ranged from about 5% to 30%. The percentages found by the present study fit with the previously suggested range, but learning disabled and control children showed a similar incidence of problems, for each of the variables.

Generally, the proportions found in the present study were somewhat lower than those cited in the literature. For example, serious childhood illness was one factor which approached significance in differentiating between the two groups ($p < .10$). Silver (1971) had reported that 25% of learning disabled children had experienced a serious illness; Koppitz (1971) had found 31%. The present study

found that only 18% of learning disabled children in the sample had serious illnesses reported by their mothers. The comparatively lower percentages of the present study may be due to a difference in the severity of learning and other problems. Many of the studies in the literature, including those of Silver and Koppitz, dealt with children who were placed in special classes on a full-time or residential basis; in the present study the learning disabled children were receiving learning assistance on a part-time basis, often for only half an hour per day.

Particular findings of the present study are interesting because of the low frequency of medical problems. For example, only 3% of learning disabled children were reported to have been born prematurely, and only 6% had experienced a serious accident. Other variables were found to be almost identical in their frequency in the two groups: allergies were reported for 23% of both learning disabled and control children.

It is possible that the myth of learning problems being associated with medical problems was perpetuated by well-meaning counsellors and teachers. Because it was generally accepted that there was a link, educators were encouraged to question the child's birth and medical history when a learning problem was evident. There would be little cause for a similar investigation of the background history of normally achieving students. Thus the incidence of medical problems in the whole population was never identified.

The hypothesis that learning disabled children would have significantly more problems with coordination was supported by the present study ($p < .001$), and agreed with earlier findings of Brown

(1969) and Owen, Adams, Forrest, Stolz and Fisher (1971). Looking at the frequencies of Table 3, it can be seen that the highly significant chi-square value obtained was due to the fact that no cases of poor coordination were reported by the mothers of control children. The proportion of learning disabled children with coordination problems was similar to the proportions found for other variables: 18%.

The reported poor coordination of learning disabled children may be closely linked to the generally higher negative behavior also reported by the mothers. Poor coordination is often used as a descriptor following observation of the child's behavior, and may not be supported by any medical evidence. Therefore, coordination might not be a purely medical factor, and could possibly be considered as another example of behavioral differences between the two groups.

"Other" medical factors also significantly differentiated between the two groups. However, the presented analysis of the "other" problems in the preceding chapter indicated that the majority were again behavioral or educational rather than medical. As discussed in Chapter 2, there is no evidence that the labelled problems reported by the mothers -- dyslexia, mirror vision or reversals -- are related to neurological functioning. It appears, then, that neither coordination nor "other" problems can be considered as purely medical factors. It can therefore probably be concluded that the medical factors investigated in the present study do not differentiate between the learning disabled and normally achieving students.

As predicted, the findings showed that learning disabled and normally achieving students could be differentiated on the basis of their observed behavior; the mothers in the present study reported significantly more negative behaviors for the learning disabled children.

Two main areas of interest in the findings will be discussed. The first of these is the relatively high frequency of some discriminating negative behaviors in the control group. For example, distractibility was the factor which showed the greatest discriminatory power between the two groups. However, the mothers reported that 19% of the children in the control group were also distractible, a percentage greater than that obtained by the learning disabled group on some factors significantly differentiating the groups. Significant effects were obtained for temper tantrums, destructiveness and medication for hyperactivity, yet only 16% of the learning disabled group had reported temper tantrums, only 6% were classified as being destructive, and only 15% had ever taken medication for hyperactivity. It appears, then, that one of the most frequently observed problems of learning disabled children is also a problem for about one-fifth of the normally achieving school population.

The second is the finding that although both learning disabled girls and boys demonstrated significantly more negative behavior, an analysis of the contributing behavior variables for each sex showed that the only factor on which the frequency of LD girls was higher than control girls was distractibility. In contrast, the learning

disabled boys were significantly more hyperactive, more destructive, more distractible, had more temper tantrums and more of them had received medication for hyperactivity. It appears that both girls and boys in the learning disabled group had problems concentrating on and attending to their schoolwork, which seems logically related to their lower level of academic achievement. However, the girls did not differ significantly from the control group on the other negative behaviors displayed by the learning disabled boys. None of the learning disabled girls were seen as destructive. The observed hyperactivity among the LD girls (16%) was comparable to that reported for control girls (14%) and boys (15%). None of the learning disabled girls had taken medication for their hyperactivity. Still, the learning problems of the girls were similar to those of the boys; both boys and girls in the learning disabled group had average intellectual ability and a deficit of 1 1/2 to 2 years in one or more school subjects.

A review of the literature indicated previously that teachers reported behavior problems to be "more serious" than academic problems, and tended to refer more boys than girls (Phipps, 1977). A question arising from the present study concerns the negative behaviors observed in learning disabled boys, which were not reported for the girls. There must be a reason why boys, but not girls, are unable to sit still, and respond to their learning problems with temper outbursts and destructiveness.

Owen, Adams, Forrest, Stolz and Fisher (1972) have suggested several possible explanations. The first, that of greater

biological vulnerability of the male sex, is related to the medical model and does not seem to explain behavior. The second is that girls and boys mature at differential rates; this could explain the girls' ability to sit still and control their emotions. However, the third explanation, that of cultural expectancies and differing socialization for the two sexes, seems equally plausible. It could be that learning disabled girls are less hyperactive because all girls are encouraged to play quiet games, and are rewarded for such behavior. Also, since boys have traditionally been expected to become the financial supporters of their families, while girls have a choice of whether or not they will have a career other than homemaker, little boys may be under more pressure from parents and teachers alike to improve their achievement.

Koppitz (1971) reported that when she followed up 177 learning disabled children to determine their progress after five years, the children who had demonstrated behavior problems when they entered the program showed the least progress. Koppitz noted that the acting-out behaviors were related to a poor prognosis for improvement in achievement. Koppitz also commented on the greater ratio of boys in comparison to girls in classes for the learning disabled, and said that "youngsters were more often referred to the LD program on account of their behavior than on account of their poor achievement" (1971, p. 193). Koppitz found that boys who experienced learning problems and frustration in school tended to respond by acting out, while girls tended to withdraw.

Regardless of the mechanisms behind the differences in behavior,

the present study has shown that learning disabled boys have certain negative behaviors that differentiate them from other boys, and other children. Learning disabled girls have difficulty concentrating, but do not demonstrate the other negative behaviors of the boys. This difference between learning disabled boys and girls likely has implications for the feedback and reinforcement each group will receive from parents and teachers. Negative behaviors will elicit negative feedback and punishment. Learning disabled boys may have two problems: a learning problem and a behavior problem.

Although the results showed a significant difference between the total learning disabled and control groups, as well as the two groups of boys, in terms of repeating a grade, there was no difference between the two groups of girls. Eleven learning disabled boys had repeated a grade, while none of the control boys had repeated. In contrast, only three LD girls had repeated, while two girls from the control group had repeated a grade. One wonders why some apparently low achieving girls had not been classed as learning disabled. By definition, all the subjects in the present study had to have average ability, yet two girls with average ability and achievement low enough to warrant repeating a grade were not identified as being learning disabled. It may be that girls are less likely to be seen as being learning disabled because, as previously shown, their behavior does not differentiate them from other girls. Learning disabled girls may have a greater likelihood of being "missed" when teachers refer children with learning problems for assessment; this may be another factor contributing to the uneven boy-girl ratio in classes for learning disabled children.

The finding that learning disabled children had attended a greater number of schools by grade three ($p < .10$) did not reach significance at the .05 level, but the obtained probability indicates that the chances are about 94 out of 100 that there is a difference. Almost half of the learning disabled children had changed schools at least once by the time they reached grade three. This study, therefore, found some support for suggestions in the literature that high family mobility could be linked to lower scholastic achievement (Camlibel, 1975; Glaser, 1974). An unexpected finding was the high frequency of moves for some of the students; the mothers of 18 children (11 LD and 7 control) reported that their children had changed schools at least once a year and sometimes twice a year. With such frequent moves, it seems that program continuity would be very difficult.

The hypothesis that mothers would have significantly lower perceptions and expectations of learning disabled children's achievements and abilities was strongly supported by the study, with highly significant probabilities. The mothers rated their learning disabled children, both boys and girls, as being less able to learn, and predicted that the learning disabled children would be less able to complete university. These findings are in agreement with those of Chapman and Boersma (1979b) who found that mothers of learning disabled students expected their children to perform poorly on future academic tasks.

The literature suggested that previous achievement often influences parents' and teachers' expectations for future achievement of a child. The present study suggests that initial achievement

levels may be further generalized to also determine parents' perceptions of their child's ability to achieve. Since the abilities of the children in the two groups do not differ, as measured by the WISC-R, the mothers' perceptions of the learning disabled children as being significantly lower in ability are contrary to the facts. There is the possibility that the mothers were not able to differentiate between the concepts of achievement and ability, and confused the two in responding to the questions about the subject areas. However, the question, "Rate your child's ability to learn" seems to clearly specify ability; the mothers of LD children again rated their children significantly lower.

The Wide Range Achievement Test provided evidence that the learning disabled children were all low in achievement in at least one subject. The mothers also indicated that they were aware that their children had problems in learning; the mothers of the learning disabled children stated that significantly more of their children had a reading problem, and indicated that significantly less time was spent by their children in recreational reading. It might be expected, then, that the mothers of the learning disabled children would help their children with their school work. The results of this study showed that significantly more mothers of learning disabled boys indicated that they did help their sons with schoolwork; however, when the mothers were asked later in the questionnaire to estimate the amount of time they spent helping with schoolwork; there was no difference between the two groups of mothers. Similarly, the mothers of learning disabled girls did not help their daughters with schoolwork any more than did the mothers of control girls. Thus, although the learning disabled children had significantly lower achievement, and their mothers seemed aware of

their learning problems, the mothers did not report spending extra time helping the children.

Several findings of this study may be related to the mothers' apparent decision not to provide extra help. Firstly, there is the evidence, already discussed, that the mothers of learning disabled children did not think their children had the ability to achieve at a higher level. Secondly, there is some evidence that mothers of learning disabled children perceived a conflict between themselves and their children about the value of school achievement, as indicated by grades. Mothers of learning disabled children were similar to mothers of the control group in rating grades as important, even when asked to consider other aspects of school life. However, there was a significant difference ($p < .001$) between how mothers of the two groups rated the importance of grades to their children. The mothers of the learning disabled children indicated that they perceived their children as less concerned about grades or achievement. Therefore, the results indicated that mothers of learning disabled children thought their children were incapable of better achievement, thought their children did not care about getting higher grades and, perhaps as a result, did not spent any more time helping the children with their learning problems.

Cooper's (1979) proposed mechanism to explain how low expectations can maintain low achievement seems relevant here. On the basis of past achievement, the mothers of the learning disabled children probably formed an expectation of low future achievement. The mothers also may have generalized past achievement to infer low ability, which was an inaccurate perception. Perhaps because these mothers saw their children as low in ability, with little chance for improvement, they

did not spend more time helping with schoolwork or learning problems at home. Since the mothers were not involved with their children in schoolwork, there was little opportunity for the children to receive immediate task-related feedback or reinforcement from their parents. The children would likely not see any relation between homework and success; therefore, these low achieving students would tend to spend comparatively less time and effort on homework, thus reducing the chances of improving their achievement.

Furthermore, the mothers of the control children indicated that they thought their children placed a value similar to their own on grades and achievement. The mothers of the learning disabled children indicated a conflict in values between themselves and their children. It seems probable that the socio-emotional climate between the mothers and the learning disabled children could be comparatively cooler, with fewer positive verbal or non-verbal interactions. Chapman and Boersma (1979b) found that mothers of learning disabled students did report more negative interactions with their children than did mothers of normally achieving students. Therefore, a combination of low expectations, negative mother-child interactions, and little positive feedback about school-related tasks could serve to maintain low achievement. The effects of parental expectations and reactions are important to educators in that they may reduce the probability of success for remedial programs.

Educators must also be aware of the relation of other parental and family factors to learning disabilities. As predicted, family demographic factors did not significantly differ between learning disabled and normally achieving students. There was little indication

that learning problems were related to adoption. The present study found that only two learning disabled children had been adopted; similarly, two children in the control group had been adopted. In other words, an adopted child could have learning problems, but so could a child living with his natural parents; an adopted child could also have average or above average achievement. Family size, as determined by the number of children in the family, was also unrelated to learning problems, a finding that agrees with that of Helms (1977) who reported no significant difference between learning disabled and control children in terms of family size. As previously discussed, studies suggesting that learning disabilities are more common in children from larger families (Camlibel, 1975; Glaser, 1974; Neifert & Gayton, 1973) may be valid; Camlibel reported a critical size of seven children as relating to an increased probability of learning problems. However, in the present study the mean number of children in both learning disabled and control families was between two and three.

The findings of no significant differences between the learning disabled and control groups in terms of parental education or family income further supported the hypothesis. Again, although extreme cases, such as those reported by Camlibel, may show a relationship with achievement, in general, learning disabilities may be found at all income levels and in children of well or poorly educated parents. Other studies comparing groups of learning disabled and normally achieving students have also reported no differences in family income (Campbell, 1972) or parental education (Helms, 1977).

In contrast to the findings concerning family demographic factors, some family relationship factors were found to be associated with

learning disabilities. The hypothesis that there would be less stability in the family relationships of learning disabled children was supported. Significantly more mothers of learning disabled children were no longer married to or living with the child's father. The proportion of learning disabled children's mothers who reported they were separated from the child's father was identical to that previously reported by Koppitz (1971). Over twice as many mothers of LD children reported being separated, in comparison to the mothers of control children. One assumes that the separations were preceded by some degree of parental conflict. Further parental disagreement is evident in those families where the children no longer visit or see their father; again, twice as many learning disabled children did not spent any time with their fathers. The net effect of parental separation or isolation of children from their fathers was that 23% of the learning disabled children lived with their mothers, and did not see their fathers, as compared to only 5% of the control group. Other researchers had suggested that there was more parental conflict in the families of learning disabled children (Campbell, 1972; Gerber, 1976; Grossman, 1978a; Wetter, 1971, 1972). The present study assumed conflict had occurred when the parents were separated, or when one separated parent was no longer actively involved in raising the couple's child. Since there was no measure of parental conflict for the intact families, it is possible the comparatively more parental conflict might also be found in the familes of learning disabled children, where there had been no parental separation.

Not only were significantly more LD mothers separated, but a greater number had also remarried ($p < .05$). It appears that this

may be another example of family instability related to learning disabilities; following the break-up of the marriage, seven mothers of learning disabled children brought a new male into the family. None of the mothers of the control children had remarried. It is possible that the presence of a step-father might be a second adjustment for learning disabled children who have already experienced their fathers' leaving.

The finding that significantly less time was spent with learning disabled children by the father or other male living in the home is probably related to the high percentage (37%) of separations in the learning disabled families. Almost a quarter of the learning disabled children had no time spent with them by their fathers. For the remaining 14% who came from separated families, but did see their fathers, it is probable that the number of hours each week spent with the fathers would be fewer than if the child and father lived together. Furthermore, although 11% of the mothers of the learning disabled children had remarried, it is possible that the step-fathers would not spend as much time with the children as would the natural father living in the home -- particularly if the step-father also had children of his own to visit and spend time with.

The present study made no attempt to determine causality, whether learning disabilities might be partially due to the stresses of parental conflict and marital break-up, or whether parental conflict and separation might be results of the stress of coping with a learning disabled child. It is possible that both effects could interact. A couple trying to deal with their child's low achievement could experience added stress and conflict; in turn, the

child could become so concerned about his family's unsettled homelife that he was unable to concentrate on his schoolwork.

The findings of this study indicated that it was the separation of the parents and the father's absence that were related to the incidence of learning disabilities; the age of the child when the separation occurred did not differ between the learning disabled and control groups. Because it was thought that the upheaval of a parental separation might be more critical in affecting a child's school achievement during or just before the early school years, the data was reanalyzed by dividing the groups into those where the separation occurred before the age of five, and those where it occurred during the school years. Again, there was no significant difference between the two groups. It may be that parental conflict in the family had continued over a number of years, so that the incidence of learning disabilities may be related to the degree of family conflict rather than the resulting separation itself.

In this study, there was a greater proportion of separations in the families of boys than of girls; out of a total of 31 reported separations, 77% were in boys's families while only 23% were in girls' families, producing a ratio of 3 1/2 to 1. Furthermore, for parental separations occurring in families of learning disabled children, the proportions were identical: 77% of the separations occurred in boys' families and 23% in girls' families. Therefore, it appears that although about three times as many boys as girls in the learning disabled groups came from separated families, three times as many boys also were able to maintain normal levels of academic achievement, despite their parents' separation.

It seems that the relationship between family instability and learning disabilities is not clear-cut. As demonstrated above, although significantly more learning disabled than control children came from separated families, the fact remains that 16% of the children with normal achievement also came from separated families. One wonders what factors might differentiate between these two groups of children, both from separated families, but only one of which continues to achieve well in school. Koppitz has suggested, "Whereas most well-integrated children can and do survive in an unstable home without too much serious damage, the LD pupils cannot cope as easily with instability and deprivation" (1971, p. 52).

The hypothesis that mothers of learning disabled children would report having experienced significantly more negative emotions than mothers of normally achieving students was supported by two of the questionnaire items. Not surprisingly, the mothers of both learning disabled girls and boys reported that they were very concerned about their children's achievement in school. However, it must be remembered that, despite this reported concern, the mothers of the learning disabled children were not spending any more time helping their children improve their academic achievement than were mothers of normally achieving children. It could be that the mothers wanted to appear to be "good" mothers by expressing concern to others, or perhaps they felt school achievement to be solely the responsibility of the teacher. As already discussed, the apparent conflict between feelings and actions may be due to the finding that the mothers of the learning disabled children did not believe their children had the ability to achieve at a higher level. The mothers of the LD group may

be concerned, yet feel there is little hope for improvement.

The mothers of learning disabled girls reported significantly more feelings of loneliness than did the mothers of control girls. The mothers of the two groups of boys did not differ significantly in terms of reported loneliness. The finding of greater loneliness in mothers of learning disabled children agrees with that of previous researchers (Freeman, 1971; Merron, 1978). In the present study, it appears that the mothers' loneliness cannot be accounted for by the parental separation; the same proportion of girls in both learning disabled and control groups came from separated homes. Furthermore, a greater percentage of the separated mothers of learning disabled girls had remarried (60%) in comparison with the proportion of remarriages among the separated mothers of the learning disabled boys (22%). One wonders why the mothers of learning disabled girls reported significantly more loneliness, while the mothers of learning disabled boys did not. The present study offers no explanation of this observed sex difference. A possible explanation comes from Koppitz's 1971 study of learning disabled children. Koppitz found that although comparatively fewer girls are placed in learning disabled classes, the girls that are sent to a special class are usually more impaired and lower in achievement than most boys of similar age and intelligence would be. The reported loneliness of the mothers of learning disabled girls may be related to the greater severity of the girls' problems.

In summary, two of the reported mothers' emotions differentiated between the learning disabled and control groups. Generally, concern

about achievement and loneliness both seem related to the children's learning disabilities rather than the marital status of the mothers.

CHAPTER VI

CONCLUSION AND EDUCATIONAL IMPLICATIONS

It is difficult to summarize the findings of the present study in terms of a "typical" learning disabled child. Often a factor which significantly differentiated between the two groups was reported for only some of the learning disabled children. Generally, however, the findings indicate that an LD child is more likely to have repeated a grade, and tends to have changed schools fairly frequently. The LD child may appear to be poorly coordinated and distractible, and LD boys often display other negative behaviors, such as hyperactivity. The learning disabled child would have a greater chance of being from a separated home, and spending comparatively less time with his father. The LD child's mother is more likely to underestimate his ability to achieve at scholastic tasks, and there might be some negative mother - child interactions related to perceived value differences. In general, LD children tend to have particular learning behaviors which seem related to social background factors.

As important as the factors which were found to differentiate between learning disabled and normally achieving students are those which did not discriminate between the two groups. In general, prenatal, perinatal or childhood medical problems were not significantly different in the two groups. Similarly, family demographic factors such as adoption, family size, parental education or family income were not significantly different. Thus, many of the factors which counsellors and educators have thought might be related to learning disabilities, and which were considered to be beyond the scope of possible change, have been found not to be significant discriminators.

The findings of this study that the major differentiators between learning disabled and normally achieving students are behavioral and social factors provide new optimism for the possibilities of improvement in achievement for learning disabled children. The task of effecting these changes, however, should not be underestimated. Koppitz (1971) in her five-year follow up of a group of learning disabled students found that behaviors and social background factors were foremost in determining the prognosis for a learning disabled child. Koppitz noted that learning disabled children who exhibited acting-out behaviors at their entry to the program showed little improvement over the five-year placement. She also stressed the importance of family relationship factors: "These findings indicate that a child's social background is more closely related to his status five years after entry into the LD program than his diagnostic label or his developmental history" (Koppitz, 1971, p. 51).

It seems, then that any remedial program must also include strategies for modifying negative behavior, and involving the parents in an active role of helping to change their child's socioemotional environment. The school counsellor/psychologist should be reponsible for providing information and knowledge about learning disabilities, as well as working individually with the parents on specific parenting skills, or helping parents work through their feelings toward their learning disabled child. Some specific areas which the present study has indicated to be problems are: 1) understanding the difference between ability and achievement, 2) understanding that learning disabled children have average or normal ability, 3) knowing how to deal with and modify negative behaviors, 4) knowing how to help the

child with school-related work at home, 5) understanding the functions of immediate feedback and reinforcement, 6) learning to deal with negative feelings related to the child and his low achievement, and 7) learning how to structure opportunities for positive interactions with the child.

The present study also indicated that parental separation and father absence are factors often associated with learning disabilities. The school counsellor should be aware that parental separation may affect the child's learning, regardless of the child's age when the separation occurred. Individual counselling with the child may be warranted, as well as work with the mother or both parents. In view of the large proportion (23%) of learning disabled children no longer seeing their fathers, as found in the present study, it seems plausible that counsellors should work toward re-establishing father contact for those children.

A number of previous studies have stressed the importance of directly involving parents in the remedial program, if it is to be successful. Grilli (1974) reported changing learning disabled children's behaviors, as rated by classroom teachers, through a series of parent discussion groups which dealt with the affective needs of children and child-rearing techniques. White (1972) taught parents of learning disabled children to use behavior modification techniques, and found that not only did the children's maladaptive behavior decrease, but the parents showed a significant positive change in attitude toward their child. Similarly, another group of children, whose parents had been involved in parent effectiveness training (Giannotti, 1979), showed positive gains in self-concept, teacher-rated

positive behavior and attitude toward their parents. The parents showed significant positive changes in attitudes on all scales of a parent attitude survey. Finally, Spector (1975) compared three parent counselling approaches which were used with learning disabled boys and their mothers. Spector found that behavior modification was most effective for helping parents change their children's behavior, while parent-child interaction was most useful for effecting changes in mothers' and children's attitudes toward each other. Spector concluded, "It would appear that mothers of learning disabled children might best improve their child's behavior and the mother-child relationship by investing extra personalized attention in mutually satisfying activities with their child" (1975, p. 138).

The above studies have shown parent counselling to be effective in changing behaviors and attitudes, but the primary way in which learning disabled children differ from normally achieving students is their low level of academic achievement. Edgerly (1975) compared individual tutoring to a combination of parental counselling and child tutoring. Edgerly found that the children who received tutoring and whose parents received counselling showed a significant improvement in achievement ($p < .01$), as measured by the Metropolitan Achievement Test. Personal contact and support from the counsellor were suggested to be particularly important in improving achievement by working with the parents; a third group in which the parents received information from the counsellor through the mail showed minimal gains in achievement.

It seems that parents require more than information about learning disabilities and child-rearing in order to change their attitudes and interactions with their children. There is also evidence that support

for the parents must continue over a length of time. Hahn (1975) found that both structured and informal parent programs were effective in improving the reading achievement of learning disabled children. However, when the reading achievement levels were reassessed two years later, the significant gains that had been made were lost; the children whose parents had attended the parenting groups achieved at the same level as the control group of learning disabled children. Hahn suggested that some sort of maintenance parent program may be needed.

Parenting learning disabled children is not an easy task. The children are achieving well below their ability level, they do have problems with coordination, and find it difficult to concentrate for a period of time. It is not surprising that parents are concerned about their children's progress, yet feel unable to effect changes. The present study has found that mothers' perceptions of their learning disabled children are often negative, and their expectations for future success low. Other researchers (Chapman & Boersma, 1979b) have reported more negative interactions between mothers and learning disabled children, and have suggested that LD children have a more external locus of control. The task of modifying attitudes, changing interactions, and teaching parents how to effect changes in the learning and behavior of their children cannot be expected to be short or easy. The school has a function as the primary remedial agent to coordinate the efforts of teachers and parents in order to provide a complete remedial program for each child.

Limitations of the Study

The present study assessed the characteristics differentiating learning disabled and normally achieving students, as seen by their

mothers and reported through responses to items on a questionnaire. When a questionnaire is used there is the risk that people will not answer truthfully, or will answer in a way they think the researcher wants them to answer. Furthermore, self-report data may be less honest when there is a potentially threatening interviewer present.

For example, in the present study the mothers of learning disabled children reported that they placed significantly more limits on watching television than did mothers of control children ($p < .05$). However, later in the questionnaire when the mothers were asked to estimate the amount of time their children spent watching television on a typical school day, or during a typical school week, it was found that there was no difference between the two groups of children. One wonders, then, if the mothers of the learning disabled children tried to make themselves appear to be "good" mothers by reporting that they limited their children's television viewing; the popular press has made parents aware of the possible harm associated with indiscriminate or unlimited viewing. Alternatively, the mothers of learning disabled children may not have a concept of "average" television viewing by which to judge the amount. A similar example was reported previously, when mothers of learning disabled boys reported that they helped their sons significantly more with schoolwork than did the control mothers; subsequent estimates of the amount of time actually spent helping did not substantiate the mothers' claims.

For the purposes of the present study, it seems this apparent limitation may actually provide more information for counsellors preparing to work with the parents of learning disabled children. In order to establish rapport, one must be aware of and accept the clients'

present beliefs and attitudes. One must begin working with the clients at the point where they are, complete with defenses, misconceptions, biases and contradictions. Therefore, for counsellors attempting to apply some of the findings of the present study to their work with learning disabled children and their families, the interview questionnaire format is probably highly valid.

Suggestions for Further Research

The higher incidence of learning disabilities in boys as compared to girls has often been reported (eg. Koppitz, 1971; Phipps, 1977). The present study has presented some specific sex differences in learning disabled children which offer possibilities for further research. The first is the finding that learning disabled boys display a number of negative behaviors not seen in girls. Further research should investigate whether the differential visibility of boys and girls, because of behavior differences, is related to a greater chance of referral for boys. Furthermore, research into the comparative value placed on achievement for boys and girls by their parents and teachers should be carried out. It seems possible that if boys experience adult pressure to achieve at higher levels because of a greater value being placed on high male achievement, the observed behavioral problems could be one result.

A second finding suggesting further research is the high incidence of learning disabled boys coming from separated families. Further study is needed in the area of parent-child relationships, and particularly father-son relationships to determine if there is a link to the higher incidence of learning disabled boys.

Although parental conflict and separation was found to be a

factor significantly discriminating between learning disabled and normally achieving students, a number of children from separated homes were able to maintain average or above average achievement levels. A question for further research would be to determine what characteristics of the children and their families relate to whether or not normal achievement was maintained.

Finally, further study of the concept and measurement of distractibility may be merited. The present study found that distractibility was reported to be a problem for learning disabled boys and girls, as well as for one-fifth of the normally achieving children. Some observed behaviors eliciting inferences of inattention and distractibility may actually be examples of needed rest periods between longer periods of concentration. A large portion of the problem of "distractible" children may be due to poor teaching methods. Both teachers and parents could benefit from knowledge of improved remedial methods for use with all children.

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APPENDIX

MOTHER INTERVIEW SCHEDULE

ID: _____

I. Child's name: _____ Age: _____

Mother's name: _____ Phone: _____

Address: _____ Post code: _____

School: _____ Grade: _____

Teacher: _____ RR/NRR: _____

II. HISTORY OF CHILD

1. Date of birth: _____

2. Relationship of child to mother:

1 _ own
2 _ adopted
3 _ foster
4 _ other (_____) spec.

3. If not natural mother, how many years has this child been under your care?

1 _ 0-1 yr
2 _ 1-2 yrs
3 _ 2-3 yrs
4 _ 3-4 yrs
5 _ 4-5 yrs
6 _ 5-6 yrs
7 _ 6-7 yrs
8 _ 7-8 yrs
9 _ 8-9 yrs
10 _ 9-10 yrs
11 _ 10-11 yrs
12 _ 11-12 yrs
13 _ 12+ yrs

4. If natural mother, was the delivery
1 _ easy
2 _ average
3 _ difficult

If natural mother, was the birth premature?
1 _ yes
2 _ no

If natural mother, how old were you when he/she was born?

1 _ 15-20 yrs
2 _ 21-25 yrs
3 _ 26-30 yrs
4 _ 31-35 yrs
5 _ 36-40 yrs
6 _ 41-45 yrs
7 _ 46+ yrs

5. Has this child had any serious illnesses to date:

1 _ yes (_____) 2 _ no
spec.

6. Has this child had any serious accidents to date:

1 _ yes (_____) 2 _ no
spec.

7. Has your child had any problems with the following?

a) speech 1 _ yes 2 _ no
b) vision 1 _ yes 2 _ no
c) hearing 1 _ yes 2 _ no
d) co-ordination 1 _ yes 2 _ no
e) other 1 _ yes 2 _ no (_____)
spec.

sum of yes (a-e) _____

8. Medical history of this child:

a) frequent colds 1 _ yes 2 _ no
b) allergies 1 _ yes 2 _ no
c) stomach 1 _ yes 2 _ no
d) head colds 1 _ yes 2 _ no
e) nightmares 1 _ yes 2 _ no
f) bedwetting 1 _ yes 2 _ no
g) other 1 _ yes 2 _ no (_____)
spec.

sum of yes (a-g) _____

9. Has your child ever received medication for hyperactivity or behavioral problems?

1 _ yes (_____ spec.).

2 _ no

III. BEHAVIORAL DATA ON CHILD (Look for typical patterns)

1.	Any nervous habits? (Underline)	1 _ yes	2 _ no
	Tics, persistent mannerisms: clearing throat, sniffing, hunching up shoulders, squinting, twitching of any facial muscles, tapping with feet, nailbiting, thumb sucking, other (spec. _____). READ THESE OUT LOUD.		
2.	Hyperactive, inability to sit still	1 _ yes	2 _ no
3.	Uncontrolled emotions, temper tantrums	1 _ yes	2 _ no
4.	Marked inability to concentrate, distractible	1 _ yes	2 _ no
5.	Extremely irritable	1 _ yes	2 _ no
6.	Unusual fear or anxiety	1 _ yes	2 _ no
7.	Very unhappy, depressed	1 _ yes	2 _ no
8.	Lacks self-confidence, pronounced shyness	1 _ yes	2 _ no
9.	Bullying, over-aggressive, constantly quarrelling	1 _ yes	2 _ no
10.	Negative attitude	1 _ yes	2 _ no
11.	Frequent lying	1 _ yes	2 _ no
12.	Persistent stealing	1 _ yes	2 _ no
13.	Destructive	1 _ yes	2 _ no
	sum of yes (1-13)	_____	

IV. EDUCATIONAL DATA OF CHILD

1. Did your child attend kindergarten? 1 _ yes 2 _ no

2. Since starting grade 1, how many different schools has your child attended?

_____

3. Has your child ever repeated a grade? 1 _ yes 2 _ no

4. How would you rate your child's ability to learn?

1)___ Excellent

2)___ Above average

3)___ Average

4)___ Below average

5)___ Poor

5. Do you think your child has the ability to complete university?

1)___ Yes, definitely

2)___ Yes, probably

3)___ Probably not

4)___ No

6. How important to you are the grades your child gets in school?

1)___ Very important

2)___ Important

3)___ Not particularly important

4)___ Grades don't matter to me at all

7. Which statement best describes your child?

1)___ Likes to get better grades than everyone else

2)___ Likes to get better grades than most everyone else

3)___ Likes to get about the same grades as everyone else

4)___ Doesn't care about grades

8. How important to you are good grades compared with other aspects of school?

1)___ Good grades are the most important thing in school

2)___ Good grades are among the important things in school

3)___ Some other things in school are more important

4)___ Good grades don't matter to me at all

9. Rank your child's ability in the following subjects:

	much below average$_1$	below average$_2$	average$_3$	good$_4$	excel.$_5$
Arithmetic	( )	( )	( )	( )	( )
Printing/writing	( )	( )	( )	( )	( )
Reading	( )	( )	( )	( )	( )
Spelling	( )	( )	( )	( )	( )
Language	( )	( )	( )	( )	( )

sum of rankings _____

10. About how much time does your child spend on reading -- not connected with schoolwork -- on a typical school day?

1)___ No time

2)___ Up to 30 minutes

3)___ Over 30 minutes to an hour

4)___ Over 1 hour

11. Do you spent time helping your child with his/her reading?

1)___ Yes, regularly

2)___ Yes, when he/she need help

3)___ No

12. Do you place a definite limit on the amount of time your child spends viewing television during the school week?

1)___ Yes, have definite time limits

2)___ No

13. Does your child have a reading problem? 1 _ yes 2 _ no

V. FAMILY DATA

1. How many children are there in the family? _____

2. Total number of children living in the home _____

3. Total number of adults living in the home _____

(a) Who are they?	(b) During a typical week how many hours does your child spend with each of these adults?					
	0-10	11-20	21-30	31-40	41-50	50+
Mother	( )1	( )2	( )3	( )4	( )5	( )6
Father	( )	( )	( )	( )	( )	( )
_____	( )	( )	( )	( )	( )	( )

4. Are you currently married? 1 ____ yes 2 ____ no

5. How many times have you been married? _____

6. If married, for how long have you been married to your current husband (in months)

_____ mos.

7. Are you currently married to (living with) your child's father?

1 ____ yes 2 ____ no

If not living with your child's father, how old was he/she when the separation took place?

_____ mos.

If separated, does your child see his/her father?

1 ____ yes 2 ____ no

If separated, and his/her father lives near Edmonton, in a typical week about how many hours would his father spend with him/her?

_____ up to 5 _____ 16-20

_____ 6-10 _____ 21-25

_____ 11-15 _____ 25+

If separated, and his/her father lives outside of the Edmonton area, about how many weeks per year does your child spend with his/her father?

_____ 1-2 _____ 7-8

_____ 3-4 _____ 9-10

_____ 5-6 _____ 10+

FOR THOSE NOT CURRENTLY MARRIED:

8. Are you currently living in a "common law" relationship with another man in the home?

1 _____ yes 2 _____ no

9. If yes, for how long have you been living with this partner?

_____ mos.

FATHER DATA:

1. Education: 1 _____ Less than high school diploma

2 _____ High school diploma

3 _____ Technical training (eg. NAIT, SAIT)

4 _____ University training

5 _____ University degree

6 _____ Graduate training

7 _____ Graduate degree

2. Current occupation (be very specific):

_____

_____

MOTHER DATA:

1. Education:
   1 _____ Less than high school diploma
   2 _____ High school diploma
   3 _____ Technical training (eg. NAIT, SAIT)
   4 _____ University training
   5 _____ Graduate training
   6 _____ Graduate degree

2. In his/her preschool years did your child ever attend a day care center?

   1 ____ yes 2 ____ no

   If so, for how many months?

   _____ mos.

3. Before your child turned five, were you ever away from him/her for more than four weeks at a time?

   1 ____ yes 2 ____ no

FAMILY INCOME:

1 _____	less than $5,000	5 _____	$21,000 - $25,000
2 _____	$6,000 - $10,000	6 _____	$26,000 - $30,000
3 _____	$11,000 - $15,000	7 _____	$31,000 - $35,000
4 _____	$16,000 - $20,000	8 _____	$36,000+

GENERAL ACTIVITIES:

1. On a typical school day, about how much time does your child spend watching television after school hours and until he/she goes to bed?

1 _____	no time	4 _____	2-3 hours
2 _____	up to 1 hour	5 _____	4-5 hours
3 _____	1-2 hours	6 _____	over 4 hours

2. During a typical school week, about how much time would your child spend watching television?

1 _____	doesn't watch TV	5 _____	16-20 hours
2 _____	up to 5 hours	6 _____	21-25 hours
3 _____	6-10 hours	7 _____	26-30 hours
4 _____	11-15 hours	8 _____	more than 30

3. How many times per week, on the average, do you help your child with school type activities, such as reading, math, printing or writing, etc?

1 _____	don't	4 _____	5-6
2 _____	1-2	5 _____	7-8
3 _____	3-4	6 _____	9+

SCALE OF MOTHERS' EMOTIONS:

	Always	Often	Seldom	Never
1. I am concerned about having enough money to get me through the month.	( )	( )	( )	( )
2. I feel lonely.	( )	( )	( )	( )
3. I worry about my child's present school achievement.	( )	( )	( )	( )
4. I feel relaxed.	( )	( )	( )	( )
5. I have problems disciplining my children.	( )	( )	( )	( )
6. I worry about my ability to cope with my responsibilities.	( )	( )	( )	( )
7. I enjoy life.	( )	( )	( )	( )
8. I worry about having enough money in the future.	( )	( )	( )	( )
9. I feel depressed.	( )	( )	( )	( )
10. I have difficulty finding someone to look after my children.	( )	( )	( )	( )
sum (1 - 10)	_____			